City and County of San Francisco
Planning Department

Golden Gate Park Draft Master Plan

Draft Environmental Impact Report
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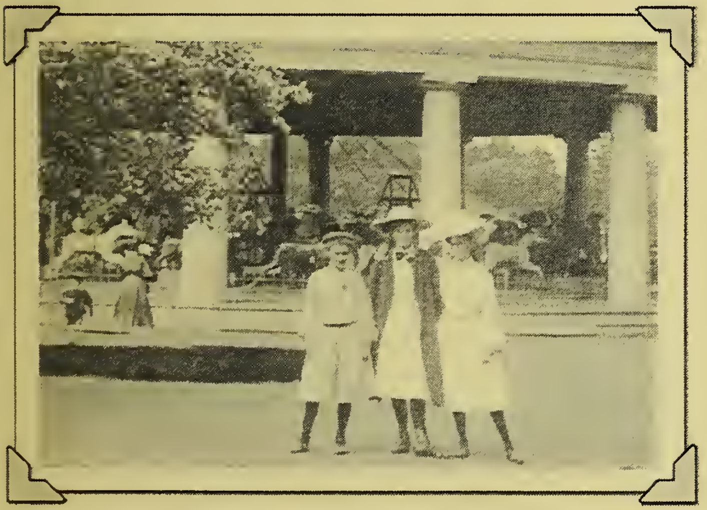

Draft EIR Publication Date: April 11, 1997
Draft EIR Public Comment Period: May 28, 1997
Draft EIR Public Hearing Date: May 22, 1997

Written comments should be sent to:

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DATE: April 11, 1997

TO: Distribution List for the Golden Gate Park Master Plan Draft EIR

FROM: Hillary E. Gitelman, Environmental Review Officer

SUBJECT: Request for the Final Environmental Impact Report for the Golden Gate Park Master Plan Draft EIR

This is the Draft of the Environmental Impact Report (EIR) for the Golden Gate Park Master Plan. A public hearing will be held on the adequacy and accuracy of this document. After the public hearing, our office will prepare and publish a document titled “Summary of Comments and Responses” which will contain a summary of all relevant comments on this Draft EIR and our responses to those comments; it may also specify changes to this Draft EIR. Public agencies and members of the public who testify at the hearing on the Draft EIR will automatically receive a copy of the Comments and Responses document, along with notice of the date reserved for certification; others may receive such copies and notice on request or by visiting our office. This Draft EIR together with the Summary of Comments and Responses document will be considered by the City Planning Commission in an advertised public meeting and certified as a Final EIR if deemed adequate.

After certification, we will modify the Draft EIR as specified by the Comments and Responses document and print both documents in a single publication called the Final Environmental Impact Report. The Final EIR will add no new information to the combination of the two documents except to reproduce the certification resolution. It will simply provide the information in one rather than two documents. Therefore, if you receive a copy of the Comments and Responses document in addition to this copy of the Draft EIR, you will technically have a copy of the Final EIR.

We are aware that many people who receive the Draft EIR and Summary of Comments and Responses have no interest in receiving virtually the same information after the EIR has been certified. To avoid expending money and paper needlessly, we would like to send copies of the Final EIR to private individuals only if they request them.

If you would like a copy of the Final EIR, therefore, please fill out and mail the postcard provided inside the back cover to the Office of Environmental Review within two weeks after certification of the EIR. Any private party not requesting a Final EIR by that time will not be mailed a copy. Public agencies on the distribution list will automatically receive a copy of the Final EIR.

Thank you for your interest in this project.

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Attn: Alice Glasner, EIR Coordinator
95.243E Golden Gate Park Draft Master Plan EIR

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ENVIRONMENTAL IMPACT REPORT

REQUEST FOR FINAL ENVIRONMENTAL IMPACT REPORT

TO: San Francisco Planning Department,
Office of Environmental Review

Please send me a copy of the Final EIR.

Signed: ______________________________

Print Your Name and Address Below

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April 11, 1997

To Whom It May Concern:

Accompanying this letter is a copy of the Draft Environmental Impact Report (EIR) concerning the San Francisco Recreation and Park Department's proposed Golden Gate Park Master Plan.

The Golden Gate Park Master Plan is a comprehensive planning document that includes general objectives and policies for the park, management strategies, and specific objectives and policies relating to the park landscape, circulation, recreation facilities, visitor facilities, buildings and monuments, utilities and infrastructure, park maintenance and operations and special area plans. Specific near-term projects, long-term projects, and studies leading to future actions are described. Plan policies and recommended actions/projects that could result in physical changes (examples include: lakes reconstruction and infrastructure projects, additions or changes to buildings or structures, changes to park circulation and parking) are analyzed in this EIR to the extent possible given available detail describing the proposed actions/projects.

Public comments on the Draft EIR will be accepted from April 11 to May 28, 1997. Comments should be sent to Hillary E. Gitelman, Environmental Review Officer, at the letterhead address.

A public hearing on this Draft EIR and other matters will be held by the Planning Commission on Thursday, May 22, 1997, in Room 428, temporary City Hall (War Memorial Veterans' Building), 401 Van Ness Avenue, San Francisco, beginning at 1:30 p.m. or later (call 558-6422 the week of the hearing for a recorded message giving a more specific time). Anyone may appear at the hearing and give testimony regarding the accuracy and completeness of the Draft EIR.

All written comments and all comments received at the public hearing will be responded to in a Comments and Responses document, which will also contain any changes to the text of the Draft EIR. The Draft EIR, together with the Comments and Responses document, comprises the Final EIR, which the San Francisco Planning Commission must certify as accurate and complete before the San Francisco Recreation and Park Commission can take action on the proposed Draft Master Plan. Preparation of an EIR does not indicate a decision by the City either to carry out or approve, or disapprove, the Golden Gate Park Draft Master Plan. Following the decision on the project, a Notice of Determination will be filed with the County Clerk if the project has been approved. After such filing, there is a period of 30 days during which an appeal contesting the EIR may be taken to court, as provided in the California Environmental Quality Act.

Additional copies of the Draft EIR are available for purchase, at a cost of $11.00 each, at the S. F. Planning Department, 1660 Mission Street, fifth floor reception, open weekdays from 8 a.m. to 5 p.m. Copies can be mailed for an additional $3.00, for a total charge of $14.00. Please make checks payable to "S.F. Recreation and Park Dept." Copies of the Draft EIR are available for review at the San Francisco Main Library (Civic Center) and all branch libraries, as well as at McLaren Lodge in Golden Gate Park at Fell and Stanyan Streets.

For further information concerning **environmental review** of the Golden Gate Park Draft Master Plan, contact Paul Deutsch of the Office of Environmental Review at 558-6383. For further information concerning the **Golden Gate Park Draft Master Plan**, contact Deborah Leamer, Recreation and Park Department, at 666-7087.

Office of Environmental Review

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City and County of San Francisco

Department of City Planning

Golden Gate Park Draft Master Plan

DRAFT ENVIRONMENTAL IMPACT REPORT

File No. 95.243E

April 11, 1997

SCH. No. 95093011

Draft EIR Publication Date: April 11, 1997

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Draft EIR Public Comment Period: May 28, 1997

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SUMMARY

The proposed project and subject of this Environmental Impact Report (EIR) is the Draft Master Plan for Golden Gate Park[1] (hereinafter referred to as the Park Master Plan). The Park Master Plan, prepared by the Recreation and Park Department staff, is a comprehensive planning document that includes general objectives and policies for the Park, management strategies, and specific objectives and policies relating to the Park landscape, circulation, recreation facilities, visitor facilities, buildings and monuments, utilities and infrastructure, Park maintenance and operations and special area plans.

The de Young Museum and the California Academy of Sciences, located in the Music Concourse of the Park, are governed by the Fine Arts Commission Board and not by the Recreation and Park Commission. These institutions are not part of the Park Master Plan and are not analyzed in this EIR.

This EIR, prepared by the San Francisco Planning Department, is an informational document for use by responsible governmental agencies and the public to identify and evaluate the potential physical environmental consequences of the proposed Park Master Plan, to present mitigation measures to reduce or avoid potential environmental impacts, and to examine feasible alternatives to the Park Master Plan, or to specific actions in the Plan. After environmental review of the plan has been completed and the EIR is certified by the Planning Commission as meeting CEQA requirements, the information in the EIR will be reviewed and considered by the Recreation and Park Commission in its decisions to approve, disapprove or modify the Draft Golden Gate Park Master Plan. Once the Park Master Plan is approved, specific actions and recommendations can be implemented.

PROJECT DESCRIPTION

Golden Gate Park, subject of the March 1995 *Golden Gate Park Draft Master Plan* (the proposed project analyzed in this EIR), is a 1,017-acre urban Park in northwestern San Francisco. The main body of the Park area is about 3-1/2 miles long and 1/2 mile wide and bounded on the west by the Great Highway along Ocean Beach; on the north by Fulton Street and the Richmond

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[1] The Golden Gate Draft Master Plan is available for public review at the SF Recreation and Park Department, located in McLaren Lodge at Fell and Stanyan Streets, San Francisco. To obtain further information about the plan or the approval process, contact Deborah Learner, Park Planner at 415-666-7087. The Park Master Plan is also available for review in the EIR project file No. 95.243E at the S.F. Planning Department, 1660 Mission Street, San Francisco.

District; on the east by Stanyan Street and the Haight-Ashbury District; and on the south by Lincoln Way and the Sunset District. Extending eastward approximately 3/4 mile from the main body of the Park is the block-wide strip known as the Panhandle, which is bounded on the west by Stanyan Street; on the north by Fell Street and the northern Haight-Ashbury neighborhood; on the east by Baker Street; and on the south by Oak Street and the Haight-Ashbury District.

Golden Gate Park's 1,017 acres include approximately 680 acres of forest, 130 acres of meadows, fields and open areas, 33 acres of lakes and 15 miles of drives. Designated Assessor's Block 1700, the Park is zoned P (Public Use) and is in the OS (Open Space) height and bulk district.

Projects recommended for near-term implementation which could potentially result in physical changes to the environment and which have not yet received necessary environmental review are analyzed in detail in this EIR. Projects that could potentially result in physical changes to the environment, but which are relatively long-range in nature and may not yet have been designated for funding are analyzed at a more general level of detail in this EIR and therefore may require further environmental review when more specific project information becomes available.
Proposed Park Master Plan projects analyzed in the EIR include:

Lake reconstruction projects
Reconstruction of Rainbow Falls
Rhododendron Dell rehabilitation and irrigation
Road closures
- Arguello Boulevard (segment near Kezar Drive)
- Conservatory Drive East
- Middle Drive West (partial)
- Music Concourse Roadway (see Bandstand / Café Plaza)
- South Fork Drive
- Waller Street
- 7th Avenue entry
- 30th Avenue entry
- 47th Avenue (near JFK Drive)

JFK / Stanyan / Kezar entry improvements / traffic calming
Landscape extensions on eastern JFK Drive
Tea Garden Drive Traffic
- Landscape, 2-lane traffic
- Landscaping, 2-lane traffic, parking on west side

Intersection paving reductions
Stanyan / Fulton Intersection Improvements
Parking limits in East Park
Multi-Use path improvements
Visitor Drop-off, County Fair Building
Powell Street Railway Station - 7th Fulton
Martin Luther King Jr. Drive turn prohibition
Sunset Boulevard roadway closure
Trail and path improvements / rehabilitation - Regional Trail connections
Golf Course irrigation system renovation
Horseshoe courts renovation / relocation

Mountain bike trail
Music Concourse Information Kiosk - 75 sq. ft.
Tea Garden - New Restroom ADA accessible, 400 sq. ft.
McLaren Lodge, structural improvements
Conservatory of Flowers rehabilitation / Addition
- accessibility improvements
- structural improvements
- addition of 3,000 sq. ft. of nursery improvements
- Conservatory Rose House reconstruction

Sharon Building
- convert to restaurant use and children's center
- relocate arts program

County Fair Building
- accessibility improvements
- structural improvements and asbestos treatment
- building redesign and renovation

Urban Forestry Center rehabilitation (partial)
Equestrian Center - addition of Caretaker Unit - 1,000 sq. ft.
Tennis Clubhouse - 1,500 sq. ft. expansion
Golf Clubhouse - 750 sq. ft. expansion
Millwright's House Demolition / Construct New Recreation Pavilion
Kezar Pavilion
- structural improvements
- accessibility improvements

Murphy's Windmill (south) restoration
Park Emergency Hospital
Arboretum Library basement storage area; disabled access - 1,500 sq. ft.
Water Distribution and Control System
Underground reservoir and central pumping station
Pumphouse entry structure - 600 sq. ft.
Return reservoir sites to parkland (No. Hill, Strawberry Hill, waterworks)
Western Park Maintenance Headquarters reconfiguration (partial)
Log storage area relocation and consolidation
Music Concourse
- Café plaza construction
- Replace temporary food vending facility with permanent structure
- Consolidate maintenance and parking lot structures
- Information Kiosk

Strybing Arboretum and Botanical Garden
- Renovation of County Fair Building
- Creation of new western entrance
- Library basement storage / disabled access

Parking Area - minor alteration of land southwest of the proposed log storage area
Stanyan / Kezar / JFK Drive entry - new landscape - minor rechannelization
West End
- Old Railroad trail improvements
- Western Park Frontage

SUMMARY OF IMPACTS AND MITIGATION MEASURES

Land Use, Zoning And Visual Quality

Demolition of the Millwright's House could potentially result in adverse visual impacts due to the historic value of the Millwright's House (built in 1909) as part of the Murphy Windmill complex.

The proposed new visitor center with recreational uses on the site would remove a non-recreational use and replace it with a recreational use.

Visitor use and visual character of many parts of the Park would be temporarily disrupted during individual project construction. For example, during lake reconstruction projects and development of the underground reservoir, soil and sediment would be exposed, some surrounding vegetation would be removed, and heavy earthmoving machinery would be in use. Roadway, utility reconstruction and building renovation projects would similarly disrupt normal Park activities and aesthetic qualities on a temporary basis. In general, recreational uses in the specific project areas (e.g., lakes, playing fields, paths, buildings under renovation, etc.) would be closed to the public during their heavy construction periods. The Golden Gate Park Bond construction projects would be phased over a seven to ten-year period and projects would be coordinated by zone to minimize disruption to recreational use and visual impacts in the Park.

The Park Master Plan is intended to preserve and enhance parkland and visual qualities. When successfully implemented over the 7-10 year time frame, the proposed projects would: remove some non-recreational uses and return about 47,000 sq. ft. of land to Park use; consolidate maintenance and support facilities to make more efficient use of Park land and screen them from visitor use areas; reduce unnecessary paved area (roadways); and landscape entries and Park edges to conform with the Park setting.

Population

Under the proposed Golden Gate Park Master Plan, the overall recreational use of the Park would not change and the annual visitor volume would be expected to remain at about eleven to fifteen million persons per year.

Transportation

The following significant transportation impacts[2] would result upon implementation of Park Master Plan actions:

- The addition of an “all bicycle” traffic signal phase proposed at the Stanyan Street/Kezar Drive intersection would degrade the intersection’s current weekday p.m. peak hour performance from level of service (LOS) C to LOS E conditions (and its current Sunday peak hour conditions would degrade from LOS B to LOS D). In the year 2005, weekday p.m. peak hour performance would degrade from LOS D to LOS F and Sunday peak hour performance would degrade from LOS C to LOS F.

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[2] A detailed analysis of transportation impacts is provided in the “Final Transportation Study for the Golden Gate Park EIR”, December 1996, available for review in the case file at the Planning Department.

- Prohibiting left-turns from eastbound Martin Luther King Jr. Drive to northbound Crossover Drive would re-route a substantial amount of traffic to eastbound Lincoln Way between Sunset Boulevard and 18th Avenue. The turn prohibition would also increase traffic levels along Irving, Judah and Kirkham Streets between Sunset Boulevard and 19th Avenue, as well as along 18th and 19th Avenues between Lincoln Way and Irving Street. The 19th Avenue-Crossover Drive/Lincoln Way intersection would be impacted significantly. The intersection's current weekday p.m. peak hour performance would degrade from LOS D to LOS E conditions (and its Sunday peak hour conditions would degrade from LOS C to LOS D). In the year 2005, weekday p.m. peak hour performance would operate at LOS F with or without the turn prohibition, but with the prohibition motorists would experience at least 30 seconds of extra delays. Year 2005 Sunday peak hour performance would degrade from LOS D to LOS F.

- Closure of Sunset Boulevard's entrance to Golden Gate Park would cause significant transportation impacts similar to those resulting from the proposed left-turn prohibition at the Martin Luther King Jr. Drive/Crossover Drive intersection. See the previous paragraph for a brief discussion of the related impacts.

To mitigate potential LOS E and F conditions resulting from inclusion of an "all bicycle" traffic signal phase at the Stanyan Street/Kezar Drive intersection, the exclusive traffic signal phase and the proposed diagonal bikeway crossing in the intersection could be excluded. This would enable the intersection to operate at acceptable service levels.

No feasible mitigation measures are available to alleviate the impacts which would result from prohibiting eastbound left-turns at the Martin Luther King Jr. Drive/Crossover Drive intersection or for closing Sunset Boulevard's entrance to Golden Gate Park.

No other significant transportation impacts would result upon implementation of Park Master Plan actions. However, several less than significant transportation impacts would result. Chapter IV.C presents less than significant traffic, transit, parking, pedestrian and bicycle, and construction potential impacts. Chapter V.C presents improvement measures to reduce the impacts.

Noise

During construction, temporary noise increases would result from the operation of heavy equipment and movement of construction material to the project site. The construction period would vary with each component of each project, ranging from between six months to over two years. The reservoir and pump station, Stow Lake, and the Arboretum projects would each be under construction for over two years (could extend longer depending on available funding). Construction noise levels would fluctuate depending on construction phase, equipment type and duration of use, distance between noise source and receptor, and presence or absence of buffers (walls, buildings, hills) between the noise source and the receptor. Construction noise sources range from about 76 to 88 dBA for most types of construction equipment at 50 feet from the noise source with slightly higher levels of about 88 to 91 dBA for certain types of earthmoving and impact equipment. Noise levels from pile drivers can generate noise peaks of approximately 101 dBA at 50 feet. The rate of attenuation is about six decibels (dBA) for every doubling of distance from a point source.

Construction-related noise may annoy Park visitors within hearing range of construction. Scheduling of projects would phase construction to avoid long duration of construction noise in any one location over extended periods of time. Park Master Plan projects that would include construction activities and equipment estimated to exceed the 70 to 80 dBA levels are located in interior areas of the Park over 100 feet from adjacent residential areas surrounding the Park.

Air Quality/Climate/Shadows

Because of the normal high winds in the western part of the Park and frequent background levels of PM_{10} that are high, there would be a high potential for a violation of the California 24-hour PM_{10} standard (but not the federal standard) at the reservoir site and the lakes project areas during construction. Use of a dust suppressant (a fine water spray mist trained on dirt piles during excavation, and onto haul trucks during loading and unloading) could reduce project-related PM_{10} emissions by 50 percent and reduce exceedances of the State standard. None of the proposed projects in the Park Master Plan would exceed 40 feet in height and building expansions would be within the shadow of existing roof lines.

Utilities And Public Services

No significant impacts to utilities or public services are identified.

Biology And Wetlands

The lakes reconstruction project would affect some wetland habitat that may be considered jurisdictional by the Corps of Engineers pursuant to Section 404 of the Clean Water Act. To ensure that the project does not adversely effect jurisdictional areas, the Corps will be contacted prior to final design to determine if impacts to jurisdictional areas would result from the lakes reconstruction project. If jurisdictional areas are present, a wetland delineation, Section 404 permit and mitigation plan will be prepared and submitted to the Corps to ensure project compliance with the federal Clean Water Act. The Corps would consult with the U.S. Fish and Wildlife Service to assess impacts to federally listed species. Formal Endangered Species consultation may be required as part of the Section 404 permit review and future biological studies may be necessary to support a Biological Opinion by USFWS.

Implementation of the Golden Gate Park Master Plan would not affect sensitive plant species.

Impacts to wildlife species: Implementation of the Golden Gate Park Master Plan would have the potential to affect both common and sensitive wildlife species. Specific programs under the Proposed Park Master Plan that would have beneficial impacts on wildlife include:

- implementation of the wildlife habitat improvement program,
- implementation of the reforestation plan (e.g., wildlife habitat improvement and indigenous oak woodland portions of this plan),

Specific actions in the Park Master plan that would result in potential adverse impacts to wildlife species (either temporary or permanent) include:

- implementation of the lakes rehabilitation project (as proposed under the Park landscape element),
- reconstruction of Rainbow Falls,
- implementation of the Strybing Arboretum Special Area Plan (last recorded location of a red-legged frog).

Impacts to southwestern pond turtles and turtle habitat could occur as a result of the proposed Lakes rehabilitation project and the reconstruction of Rainbow Falls. Turtles are known to inhabit the following water bodies: Rainbow Falls Pond and Lily Pond, and Lloyd,Metson, Mallard, Middle, and Stow Lakes and their interconnecting waterways. Suitable turtle habitat at North Lake would also be affected, although the species was not found at this lake during a 1995 survey.

Under proposed Park projects, the artificial water bodies would be temporarily drained (two to six months), sediments and vegetation removed, lake bottoms would be relined, the lakes refilled and the lake edges would be revegetated. Impacts that could result from the proposed improvements include mortality of individual turtles, temporary habitat loss during construction, and potential for permanent alteration of suitable turtle habitat (loss of protective vegetation cover, loss of basking sites). Mortality of individual Southwestern Pond turtles is considered significant because the species is considered rare locally and declining regionally, and is a candidate for federal listing.

To reduce impacts on southwestern pond turtles to less than significant levels, the following mitigation measures will be implemented:

To avoid or minimize turtle mortalities during construction, a qualified biologist will be retained by the Park to trap and relocate southwestern pond turtles from construction areas, in consultation with the California Department of Fish and Game and US Fish and Wildlife Service. The biologist conducting relocation activities will be required to obtain permits from the Department of Fish and Game and US Fish and Wildlife Service to handle southwestern pond turtles and comply with permit conditions. The biologist will record the age and sex of captured turtles to provide baseline information on the impacted population. Trapping and relocation activities will be undertaken as close to start of construction as possible. For most lakes, turtle relocation could be accomplished within fourteen working days of the start of ground-disturbing activities. Public access to relocation will be limited by installing temporary fencing (when required) and signage around relocation sites.

A suitable relocation site in an adjacent or near-by lake will be identified by the biologist in consultation with regulatory agencies. The relocation site should be close to the construction site, should not already support southwestern pond turtles, and should have vegetation and hydrologic conditions (e.g., water depth, temperature, oxygen content) that are similar to the impacted habitat. Depending on site-specific conditions and duration of construction, a temporary exclusion fence may be installed around active construction sites or relocation sites to ensure turtles do not re-enter cleared construction areas. Installation of basking sites and/or modification of adjacent vegetation may be undertaken, as appropriate, to ensure relocation sites are suitable to support turtles. Supplemental feeding of relocated turtles may be required.

The biologist will monitor dewatering and initial ground-disturbing activities in cleared construction sites to help ensure turtle mortalities are avoided or minimized. After initial ground-disturbance, the biologist will monitor construction sites for turtles once weekly, or as required based on construction schedules and activities. The biologist will also monitor turtle relocation sites to ensure proper functioning of temporary impoundments and suitable condition of relocated turtle population.

Special provisions will be added to the plans and specifications for the Lakes rehabilitation and Rainbow Falls restoration projects that will require the contractor to:

- begin work only after turtles have been cleared from construction areas,
- prohibit the contractor from conducting work in designated turtle relocation sites,
- allow the biologist access to construction sites and authority to notify the Resident Construction Engineer to stop construction to ensure protection of turtles, and
- require the contractor to notify the designated biologist and resident engineer or project representative if turtles are found in active construction areas, and require contractor to stop work for up to 24 hours to allow for relocation of turtles.

The biologist will assist the Recreation and Park Department with determining suitability of rehabilitated lakes for turtles before reintroduction is undertaken.

California red-legged frogs were found to inhabit one pond within the Strybing Arboretum complex. Loss of individual California red-legged frogs could occur as a result of improvements proposed under the Strybing Arboretum Special Area Plan. Although improvements are not proposed in the pond itself, frogs are known to migrate up to 0.25 mile from aquatic habitats to estivate (rest in a cool moist, out-of-water location). In the Arboretum, California red-legged frogs have previously been observed by gardeners under flower pots.

Because the Strybing Arboretum is the location of the last known red-legged frog occurrence in Golden Gate Park, and because the red-legged frog is listed as threatened, loss of individual frogs would be considered a substantial reduction of the remaining population and, therefore, a significant impact. The following projects proposed under the Special Areas Plan for the Strybing Arboretum are proposed in upland areas within 0.25 mile of the occupied pond:

- construction of a new rock garden and water feature.
- construction of a new path and promenade near the main gate.
- renovation of the existing well and reservoir as a water conservation interpretive exhibit.

If construction of these features occurs during migration periods for the species (November to mid-August), impacts on migrating frogs in upland areas could occur.

To eliminate or reduce potential for impacts on California Red-legged Frogs in Strybing Arboretum the following would be implemented:

- Temporarily restrict ground-disturbing activities within 0.25 mile of the pond occupied by red-legged frogs from November 1 to August 15.

- Retain a qualified biologist to install barrier fencing and pit traps around the pond occupied by California red-legged frogs in the Strybing Arboretum before the frog migration period begins (approximately November 1) during each year of active construction. The biologists will be required to coordinate with The Department of Fish and Game and US Fish and Wildlife Service on the type and location of barrier fencing and pit traps to be used, and on the frequency of monitoring pit traps (to minimize potential for frog mortalities). The biologist will be required to obtain and comply with necessary state and federal incidental take provisions or handling permits for California red-legged frog species before initiating work.

- Require the biologist to monitor initial ground-disturbing activities in construction sites and any dewatering activities that are proposed in Arboretum fountains and waterways. After initial ground-disturbance, the biologist will monitor construction sites for frogs as required, based on construction schedules and activities. The biologist will also monitor the occupied pond to ensure proper functioning of barrier fencing and pit traps. Fencing and traps will remain in place until the end of construction, or after August 15.

- Prepare Contractor bid specifications to restrict contractor from working or trespassing within the fenced California red-legged frog areas.

- Provide the designated biologist with the authority to stop construction, in conjunction with the resident engineer or project representative, as necessary to ensure protection of frogs.

Activities proposed under the draft Golden Gate Park Master Plan that have potential to harm or harass nesting raptors include:

- removal of trees under the reforestation program,
- demolition of the Millwright's House, (temporary disturbance over 4-6 weeks)
- construction of the underground reservoir and pumping facilities. (12 to 24 month construction)

These activities are considered to have potential to harm or harass nesting raptors because of their location near historical nest sites, expected prolonged construction or demolition schedule, or potential for substantial increases in disturbance (e.g., potential for high impact noise, use of large earthmoving equipment).

For construction activities of short duration that can be accomplished during any time of the year, construction would be restricted to the non-breeding season (July to January) . For construction activities that cannot be accomplished during the non-breeding season, a qualified biologist would be retained to identify active raptor nests (if any) within 0.25 mile of construction sites. If active nests are located within 0.25 mile of construction sites, suitable methods to reduce or minimize impacts to nesting raptors in consultation with Department of Fish and Game would be determined. Suitable methods to reduce or minimize impacts may include the following:

- Establish buffer zones around active nests based on site-specific conditions, and restricting certain construction activities within the buffer areas.
- Require contractor to minimize disturbance (e.g., restrict use of high impact tools (jackhammers), muffle noisy equipment, install sound barriers to direct noise away from raptor nests, require dust abatement, designate parking and equipment storage areas away from nest sites) within 0.25 mile of active nests during the breeding season (February to June). Requirements would be incorporated into bid specifications.
- Prohibit removal of trees with active raptor nests until after adult raptors have abandoned the nest site and young raptors have fledged, as determined by the biologist.

Potentially significant impacts identified for biology would be mitigated to less-than-significant with the above mitigation measures.

Geology And Topography

No significant impacts to geology and topography are identified.

Water, Sewer And Stormwater Drainage Systems

The proposed Park Master Plan lake rehabilitation projects would be intended to manage (reduce but not eliminate) lake leakage, and help achieve a balanced and sustainable aquatic ecosystem in Park lakes. The lakes are not proposed to receive any recycled wastewater, but would continue to be supplied by Park well water to maintain reduced nutrient loads. Water volumes in lakes would increase by about 10 to 15 percent due to lake deepening and sediment removal projects. However, due to improvements to liners and lake edges, leakage would be reduced and the rate of well water replenishment to all lakes combined would decrease by about 60,000 gpm (about 11 percent). Each lake would receive surplus well water that would circulate through the lake and would flow through an overflow outlet to a subsurface drainage system designed to recharge the aquifer.

Lake water quality would be expected to improve after completion of proposed lake reconstruction and utility replacement projects. The proposed measures would improve the circulation and exchange of water in all parts of the lakes. Growth of invasive aquatic vegetation (tules) would be reduced by removal of sediments, lake deepening, improved aeration, and increased rates of water exchange. Stormwater runoff and erosion into the lakes would be reduced. The elimination of storm drainage outlets into the lakes would eliminate concentrated stormwater runoff discharge contaminated with surface debris, gardening residue, oil and grease and sediments from entering the lakes. This would improve water quality in the lakes (also used for Park irrigation and groundwater recharge).

Additional use of groundwater in the Westside Basin is proposed under the City of San Francisco's Groundwater Master Plan. Production wells with a combined flow rate of about 1,000 acre-feet per year are proposed for two sites in the west end of the City, with a site in Golden Gate Park (Elk Glen Well). These two wells would begin extracting groundwater to supplement the municipal water supply by approximately 2000. The rate of ground water extraction and well production would be monitored and adjusted to prevent salt water intrusion and to protect water quality. Well operation would overlap with groundwater pumping to supply the Park's interim irrigation supply system, until recycled water deliveries began in about 2002, potentially increasing the cumulative volume of groundwater extracted from the aquifer until recycled water becomes available for irrigation. The long-term water demand from operating wells would be less than existing Park use.

The proposed lake water system, coupled with reduction of lake water leakage, would potentially reduce the Park's rate of groundwater recharge while also decreasing the rate of groundwater pumping by improving the efficiency of the system. As proposed, the lake circulation system would operate approximately eight hours a day seven days a week during daylight hours, at a rate of 500 - 1,000 gpm (about 240,000 to 480,000 gpd). This would represent a decrease compared to present groundwater pumping rates for lake replenishment (about 560,000 gpd). Meanwhile, as liner reconstruction successfully curbs lake leakage, the rate of groundwater recharge from Park lakes would be substantially reduced, and limited to lake overflow water discharged to an adjacent recharge basin.

In the near term, (1997 - 2005), the reduction in the rate of groundwater recharge from Park lakes from improved lake liners would be accompanied by an increase in groundwater pumping (about 185,000 gpd) that would occur to compensate for the proposed elimination of potable SFWD water for the Park irrigation system. Although a proportion of all irrigation water, plus rainfall, likely makes its way back to recharge the aquifer, the existing and future quantities are not precisely known. Therefore, a near-term reduction in groundwater recharge from Park lakes would be coupled with increased rates of pumping for irrigation that could result in short-term increases in water use. In the long term after 2002, the reduction in groundwater recharge from Park lakes would be more than offset by reduced overall rates of groundwater withdrawal to be made possible by the proposed shift from well water to recycled water for Park irrigation. As a result, groundwater quantities should gradually increase.

Energy/Natural Resources/Hazards

No significant impacts to energy or hazards are identified in the EIR.

Cultural Resources

Based on a structural, seismic and accessibility evaluation, the Park Master Plan does not consider renovation of the Millwright's House to be feasible; and proposes to demolish the building. Although not a designated National, State or City Landmark, the Millwright's House could potentially be a structure of importance because it is associated historically with the Murphy (South) Windmill and has been characterized as contributing to the historic character of the Park landscape. Its demolition, consequently, could be considered a potential significant environmental impact. The proposed demolition of the Millwright's House could result in the irreversible removal of a potentially historic property in the Park.

Growth Inducement Potential

The proposed Golden Gate Park Master Plan would not result in either direct or indirect population growth, nor would it encourage housing or other development in surrounding neighborhoods. Visitor use of the park would not be expected to substantially increase as a result of proposed Park Master Plan projects, and economic activity generated in adjoining neighborhoods by park visitors would not be expected to change substantially. Park employment would increase by an estimated 32 full-time equivalent workers.

ALTERNATIVES TO THE PROPOSED PROJECT

As part of the environmental review process for the Park Master Plan projects, three alternatives were analyzed. Based on environmental and public review, the Recreation and Park Commission could select an apparent best alternative or a combination of various elements of the alternatives for detailed design and implementation. The three alternatives analyzed in the EIR are:

- Alternative 1. No Park Master Plan
- Alternative 2. More Road Closures
- Alternative 3. Preservation of Potential Historic Property (preserve the Millwright's House for Park use)

The EIR analysis separated various major proposed road closures / restrictions proposed by the Park Master Plan so that impacts of each could be isolated. Therefore separate alternatives were not necessary to identify associated impacts of those proposals.

Alternative 1: No Park Master Plan

The following significant transportation impacts would be expected to result under Alternative 1, No Park Master Plan:

- By the year 2005, increased traffic growth will substantially worsen the operation of two signalized intersections during the weekday p.m. peak hour. The 19th Avenue-Crossover Drive/Lincoln Avenue intersection, which currently operates at LOS D, will degrade to LOS F conditions. The Martin Luther King Jr. Drive/Crossover Drive intersection will degrade from LOS C to LOS E conditions.

No other significant transportation impacts would result under Alternative 1, No Park Master Plan. However, several less than significant traffic impacts would result. Chapter IV.C presents less than significant traffic impacts likely to result under Alternative 1.

Park lakes and surrounding habitat would continue to degrade without the lakes reconstruction, threatening habitat for existing wildlife and plants. This would be a potentially significant impact.

Park lakes would continue to leak at an estimated 560,000 gallons per day (gpd). (Elk Glen Lake, Middle Lake and North Lake represent about 77 percent, or 428,106 gpd.)

The Park would continue to use an estimated 300,000 gpd of City water for irrigation, rather than convert to recycled water. This would be inconsistent with the City's proposed Groundwater Master Plan.

Sewer pipes and irrigation systems would continue to leak and potentially contaminate groundwater unless replaced on an as-needed basis.

The Millwright's House would remain as a private residence or would be unoccupied, eliminating the potential significant impact of proposed demolition, but continuing a non-recreation use.

The Conservatory, Murphy (South) Windmill, and Kezar Pavilion would not be rehabilitated and would not be usable by Park visitors. Continued deterioration of these historic resources would be significant if it led to loss of the resource.

Alternative 2 - More Road Closures

This section of the EIR provides an analysis of an alternative circulation plan which was not included as part of the *Draft Master Plan*, but was later proposed as an option by the Director of the Recreation and Park Department. This alternative circulation plan, entitled "Scenario 5" within the EIR, includes the following major concepts: permanent closure of JFK Drive and its abutting roadways (similar to existing Sunday operations), conversion of Waller Street to a metered parking lot, restriping a segment of Fulton Street to allow angled parking and parking meters, installation of parking meters along Kezar Drive, and improvements to the Stanyan Street/Fulton Street intersection. Scenario 5 also includes many of the transportation improvements proposed in the *Draft Master Plan.*

The transportation analysis identifies potentially significant impacts associated with Scenario 5. Potential variations of this alternative are identified in the "Final Transportation Study for the Golden Gate Park EIR", December 1996. The variations could change or reduce impacts in some locations and cause impacts elsewhere. The variations have not been studied in detail. If Scenario 5 were to be pursued by the Recreation and Park Commission for adoption, further environmental review would be required, including analysis of the associated mitigation measures, and the impacts and mitigation measures of various options.

The following significant transportation impacts would result upon implementation of Alternative 2, More Road Closures:

- The 19th Avenue-Crossover Drive/Lincoln Way intersection's current weekday p.m. peak hour performance would degrade from LOS D to LOS E conditions. By the year 2005, the Park Presidio Boulevard/Fulton Street intersection would degrade from LOS C to LOS F and the Stanyan Street/Kezar Drive intersection would degrade from LOS D to LOS E. In addition, under both study years, the westbound right-turn movement at the Stanyan Street/Fell Street intersection would degrade from LOS B to LOS F conditions.
- On Saturdays, the Martin Luther King Jr. Drive/Crossover Drive intersection would degrade from LOS D to LOS E conditions by the year 2005.

- Alternative 2 would re-route substantial traffic volumes along eastbound/northbound Kezar Drive (near Waller Street), creating LOS F conditions along the one eastbound/northbound lane segment. Provision of a second traffic lane (similar to the westbound/southbound direction) would require displacement of the eastbound/northbound bicycle trail along the historic Lake Alvord Bridge.
- Alternative 2 would also re-route substantial traffic volumes along southbound Stanyan Street south of Fulton Street, creating LOS F conditions along the roadway when only one southbound through lane is provided (during weekday p.m. peak periods, parking is prohibited in the curb lane, allowing two southbound through lanes).
- On Saturdays, Alternative 2 would substantially increase traffic levels along Martin Luther King Jr. Drive within the eastern area of Golden Gate Park, creating congested conditions and potentially increasing emergency vehicle response times.
- Closure of JFK Drive would decrease the number and availability of parking spaces near the roadway for mobility-impaired people. Mobility-impaired visitors would be required to traverse long distances to access Golden Gate Park attractions near JFK Drive.
- Provision of parking meters in the sidewalk along Kezar Drive would reduce the effective sidewalk width to about two-feet which is impassable for wheelchairs.

No feasible mitigation measures are available to alleviate the impacts which would result at the 19th Avenue-Crossover Drive/Lincoln Way, Park Presidio Boulevard/Fulton Street, and Stanyan Street/Kezar Drive intersections. However, implementing partial closures and/or Saturday closures only of JFK Drive could result in reducing the impacts to less than signficant impacts. See Chapter VIII for further details.

Mitigating impacts at the Stanyan Street/Fell Street and Martin Luther King Jr. Drive/Crossover Drive intersections would require parking removal (and potential signalization) and roadway widening, respectively. In order to alleviate congested conditions along Stanyan Street, parking would need to be permanently removed from the west side of the street between Fulton Street and Kezar Drive.

LOS F conditions along eastbound/northbound Kezar Drive (near Waller Street) could be mitigated by providing a second traffic lane (via re-striping) along the historic Lake Alvord Bridge. The displaced bicycle lane could be accommodated in a new adjacent multi-use bridge.

To alleviate increased congestion and reduced emergency vehicle travel times on Saturdays along Martin Luther King Jr. Drive within Golden Gate Park, alternative parking areas could be provided (along roadways in the west side of the Park and in the USCF garage) and a shuttle bus system to and from the alternative parking areas should be provided.

Parking spaces for mobility-impaired Park visitors could be provided along the closed segments of 8th and 10th Avenues (between Fulton Street and JFK Drive), and existing parking spaces near the deYoung Museum and the Academy of Sciences could be designated as parking for handicapped/mobility-impaired persons.

Finally, to mitigate the impact of reducing the sidewalk width along Kezar Drive due to installation of individual parking meters, either parking toll machines could be installed, parking permits could be issued, or meters could be placed *behind* the sidewalk, if feasible.

No other significant transportation impacts would result upon implementation of Alternative 2 actions. Chapter VIII presents several less than significant traffic, transit, parking, pedestrian and bicycle, and construction impacts likely to result upon implementation of Alternative 2. Also presented in Chapter VIII are suggestions for improvements for the identified less than significant impacts.

Alternative 3: Preservation Of Potential Historic Property

This Alternative recognizes the potential historic value of the Millwright's House, proposed for demolition under the Park Master Plan. This Alternative would avoid the potential significant impact of loss of this structure.

Under this Alternative the Millwright's House would be preserved as a part of the Murphy's (South) Windmill complex. The deteriorated building could be restored and upgraded to meet City Codes for ADA accessibility, electrical and ventilation codes and seismic safety conditions. The Millwright's house is a two story structure with a gabled roof and slate roof tiles. Exterior walls are unreinforced hand laid brick. Two brick chimneys are not braced to the roof structure. The existing structure, built in 1909, has five rooms and no basement. It is about 1,280 sq. ft. per floor for a total of 2,560 sq. ft.. Because of its small size and the orientation of the front of the house to the west, the building is not visually prominent from Park roads although it can be seen from MLK Jr. Drive. Though no alternatives for renovation and reuse of this structure are described in the Park Master Plan, potential use of the building could include: a meeting or social space available for public rent; a classroom for Park educational programs; a Park museum or other Park use activities. Continued use as a private residence is non-conforming with Park policies.

AREAS OF CONTROVERSY

The major areas of controversy known at this time involve Park road closures, visitor access to Park institutions (the deYoung Museum and the Academy of Sciences) if JFK Drive and its abutting roadways are permanently closed (not proposed in the current Park Master Plan) and the continued non-recreational use of Park property for the Haight-Ashbury Neighborhood Council (HANC) recycling center at the Kezar corner.

Other areas of controversy may arise as public hearings are held on the Park Master Plan.

I. INTRODUCTION

A. PROJECT OBJECTIVES AND EIR OVERVIEW

The proposed project and subject of this Environmental Impact Report (EIR) is the Draft Master Plan for Golden Gate Park[1] (hereinafter referred to as the Park Master Plan). The Park Master Plan is a comprehensive planning document that includes general objectives and policies for the Park, management strategies, and specific objectives and policies relating to the Park landscape, circulation, recreation facilities, visitor facilities, buildings and monuments, utilities and infrastructure, Park maintenance and operations and special area plans. Specific near-term projects (actions), long-term projects, and studies leading to future actions are described under each Park Master Plan Element. Broad policies, management strategies and feasibility studies that would not result in direct physical changes to the environment are not generally subject to EIR analysis. Plan policies and recommended actions/projects that could result in physical changes (examples include: lakes reconstruction and infrastructure projects, additions or changes to buildings or structures, changes to park circulation and parking) are analyzed in this EIR to the extent possible given available detail describing the proposed actions/projects.

The de Young Museum and the California Academy of Sciences, located in the Music Concourse of the Park, are governed by the Fine Arts Commission Board and not by the Recreation and Park Commission. These institutions are not part of the Park Master Plan and are not analyzed in this EIR. Because they are located in the Park the institutions are subject to Park policies and are included as part of the setting sections of the EIR. Physical changes to the buildings or relocation of the institutions that may be proposed by the Fine Arts Commission Board would be subject to separate environmental review. If either of the institutions moved out of Golden Gate Park they would be responsible for developing a Special Area Plan for demolition of the buildings and restoration of the site for Park use.

The Park Master Plan is the product of a planning process begun in 1992 that involved the San Francisco Department of Recreation and Park staff, other city departments, a task force of representatives from neighborhood user groups and Park organizations and the general public. Previous efforts leading up to this plan included the adoption of the existing Objectives and Policies in 1979 and completion of a Forestry Management Plan (1980) and a Transportation

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[1] The Golden Gate Draft Master Plan is available for public review at the SF Recreation and Park Department, located in McLaren Lodge at Fell and Stanyan Streets, San Francisco. To obtain further information about the plan or the approval process, contact Deborah Learner, Park Planner at 415-666-7087. The Park Master Plan is also available for review in the EIR project file No. 95.243E at the S.F. Planning Department, 1660 Mission Street, San Francisco.

Management Plan (1985). These plans have been updated in the Park Master Plan. The Master Plan for Golden Gate Park is intended to provide a framework and guidelines to ensure responsible and enlightened stewardship of the Park.

B. CEQA REVIEW

The California Environmental Policy Act (CEQA) applies to actions undertaken by a public agency. Under San Francisco Administrative Code, Chapter 31, the Office of Environmental Review (OER) in the Planning Department is responsible for implementing CEQA review of all City and County of San Francisco projects.

On the basis of a preliminary review of the Park Master Plan, and the Environmental Evaluation application materials submitted by the Recreation and Park Department, OER has determined that the proposed Park Master Plan constitutes a 'project' under CEQA guidelines, and that there is substantial evidence that the proposed Park Master Plan actions could either individually or cumulatively cause potentially significant impacts to the environment. OER determined that an EIR is required to describe all potential environmental effects of the proposed Park Master Plan. Pursuant to State CEQA Guidelines, Section 15063, no Initial Study was prepared because an EIR was clearly required. Because the Park Master Plan is comprehensive and covers a number of interrelated actions in a sensitive park environment, OER determined that no environmental issues would be focused out of the EIR. Therefore, this EIR will discuss all of the topics listed in the CEQA Initial Study checklist. The EIR has been prepared under the direction of OER.

The EIR is a public informational document for use by responsible governmental agencies and the public to identify and evaluate the potential physical environmental consequences of the proposed Park Master Plan, to present mitigation measures to reduce or avoid potential environmental impacts, and to examine feasible alternatives to the Park Master Plan, or to specific actions in the Plan. After environmental review of the plan has been completed and the EIR is certified by the Planning Commission as meeting CEQA requirements, the information in the EIR will be reviewed and considered by the Recreation and Park Commission in its decisions to approve, disapprove or modify the Draft Golden Gate Park Master Plan. Once the Park Master Plan is approved, specific actions and recommendations can be implemented.

C. EIR ORGANIZATION

This EIR is organized into nine chapters, plus a Summary and Appendices. This Introduction Chapter is followed by a description of the Draft Golden Gate Park Master Plan as endorsed for environmental review by the Recreation and Park Commission. The EIR Project Description organization parallels the format used to described Park Master Plan Elements in the Golden Gate Park Master Plan. A table (matrix) is used in the EIR Project Description to briefly summarize each of the Park Master Plan actions/projects and to identify the level of analysis for each action.

The Project Description (Chapter II) provides project-level information for near-term actions and provides general (program-level) information for recommendations and general policies that are not yet funded and are scheduled for a future date. The table/matrix also shows which of the proposed projects have previously received environmental review and those that would typically be exempted from CEQA review if considered on an individual basis or in a less sensitive environment than the Park. These projects are included in the EIR to address the potential cumulative impacts to the physical environment if individual projects were implemented in an overlapping time frame or within a common area of the Park.

Chapter III describes the Environmental Setting, or existing conditions in the Park at the time of this EIR, which serves as the baseline for the analysis of potential environmental impacts. The format for the Environmental Setting is organized by environmental topics generally following the order of topics in the Initial Study Checklist.

Chapter IV of this EIR describes the potential environmental impacts of the proposed Park Master Plan actions/projects. The Potential Environmental Impacts Chapter is organized to first address the general policies and management strategies and actions described in Chapter II, Project Description, that require no further environmental review. Then for each of the eight Park Master Plan elements the actions/projects that require detailed analysis are addressed. The detailed analysis of potential impacts for the near-term projects is intended to serve as the complete environmental review for these projects. A program-level analysis of the longer-term projects is also included in Chapter IV. These actions/projects may need subsequent environmental review when more detail is known about the design or timing or funding and implementation of the specific projects. Two design variants are also analyzed in the Draft EIR, an above ground pumphouse and Tea Garden Drive lane variants. Two traffic design variants (referred to as scenarios) are analyzed: a proposed left-turn prohibition at Crossover Drive/MLK Jr. Blvd., and closure of Sunset Blvd.

Chapter V of the EIR addresses the potential Growth Inducing Impacts of the proposed Park Master Plan, as required by CEQA guidelines. Chapter VI of the EIR presents mitigation measures proposed as part of the project or identified by the EIR authors that could minimize or eliminate potentially significant effects and significant irreversible environmental changes, respectively. Chapter VII addresses other topics required by CEQA guidelines, including potentially significant effects that cannot be mitigated to a less-than-significant level and significant irreversible environmental changes.

Chapter VIII describes alternatives to the proposed project, including: Alternative 1, No Project (no Park Master Plan); and Alternative 2 more road closures than in the proposed Park Master Plan (permanent closure of JFK Drive and abutting roadways).

The last EIR Chapter (IX) is the distribution list for agencies and persons receiving the Draft EIR.

D. PARK MASTER PLAN BACKGROUND AND PUBLIC PARTICIPATION

Construction of Golden Gate Park began in 1871 based on a plan by William Hammond Hall. The site was a part of the newly annexed "Outside Lands" and consisted primarily of sand hills. The design was based on Park theory espoused by Frederick Law Olmstead, to serve as an open space preserve in the City of San Francisco. The Park was to be a cultivated pastoral and sylvan landscape, defined by an abundant evergreen woodland. Hall intended that the Park would afford opportunities for all to experience beauty, tranquillity, recreation, and relief from urban pressures. Hall envisioned the Park in two different regions. The parkland east of Strawberry Hill includes a variety of intensively cultivated areas and developed facilities while the parkland to the west is a pastoral and woodland landscape with open meadows defined by stands of trees and enhanced by lakes. Much of Hall's original plan survives, providing the framework of today's park.[2]

The Park master planning process was begun in late 1992, following an extensive public process dating back to 1979 to develop the Objectives and Policies that provide the framework and guidelines for Park management decisions. Some of the 1979 conditions and issues have changed, and some of the policy actions have been completed or are outdated. The general objectives and policies have been revised through a public process.

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[2] San Francisco Recreation and Park Department, *Golden Gate Park Draft Master Plan*, March 1995, p.2-1 to 2-12.

The planning process started with an *identification of issues* and concerns through meetings with Park staff, meetings with the Task Force, a public meeting, and with a questionnaire distributed with the Park Master Plan newsletter. From these ideas common themes were identified that showed topics of community consensus and those where differing opinions would require decisions to be made.

The next phase in the planning process involved an *examination of the existing condition of the Park* to identify deficiencies and needs in the Park, and to help focus the recommendations phase of the plan. Background studies were conducted for: traffic and circulation, geology, ground water, recycled water, historic structures, forest landscape and wildlife, and endangered species. [3]

The final phase of the Park Master Plan development included *drafting the specific recommendations and actions* to correct deficiencies and address problems. Many of the capital projects described would be funded by the 1992 Golden Gate Park Infrastructure Bond. Other recommendations may require new sources of funding. Recommended actions would be implemented over several (5-10) years.

The recommended design changes, management recommendations and strategies for funding and implementation of actions were presented to the Recreation and Park Commission and the public in two public meetings in September of 1994. The meetings were announced in a newsletter distributed to the Recreation and Park Department mailing list of approximately 1,200 persons.

A Notice that an Environmental Impact Report (EIR) was determined to be required by the Planning Department, Office of Environmental Review, was mailed to 330 adjacent residents and interested parties on September 1, 1995 (attached as Appendix A).

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[3] Background reports include: Historical Element; Economic Issues; Geology, Groundwater and Recycled Water; Forests and Wildlife; Buildings and Monuments; Transportation Issues, Circulation Plan, Analysis of Roadway Closures; Park Issues; ADA Transition Plan; Domestic Water Master Plan; Sewer and Drainage System Master Plan; Pathway Repair Plan; Geological and Geophysical Survey; Proposed Water Wells; Concept Design Reports (Irrigation Water Supply; Electrical Power Service; Exterior Lighting; Lakes Rehabilitation).These background reports are available for review in the project file No 95.243E at the Planning Department, 1660 Mission Street, San Francisco.

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II. PROJECT DESCRIPTION

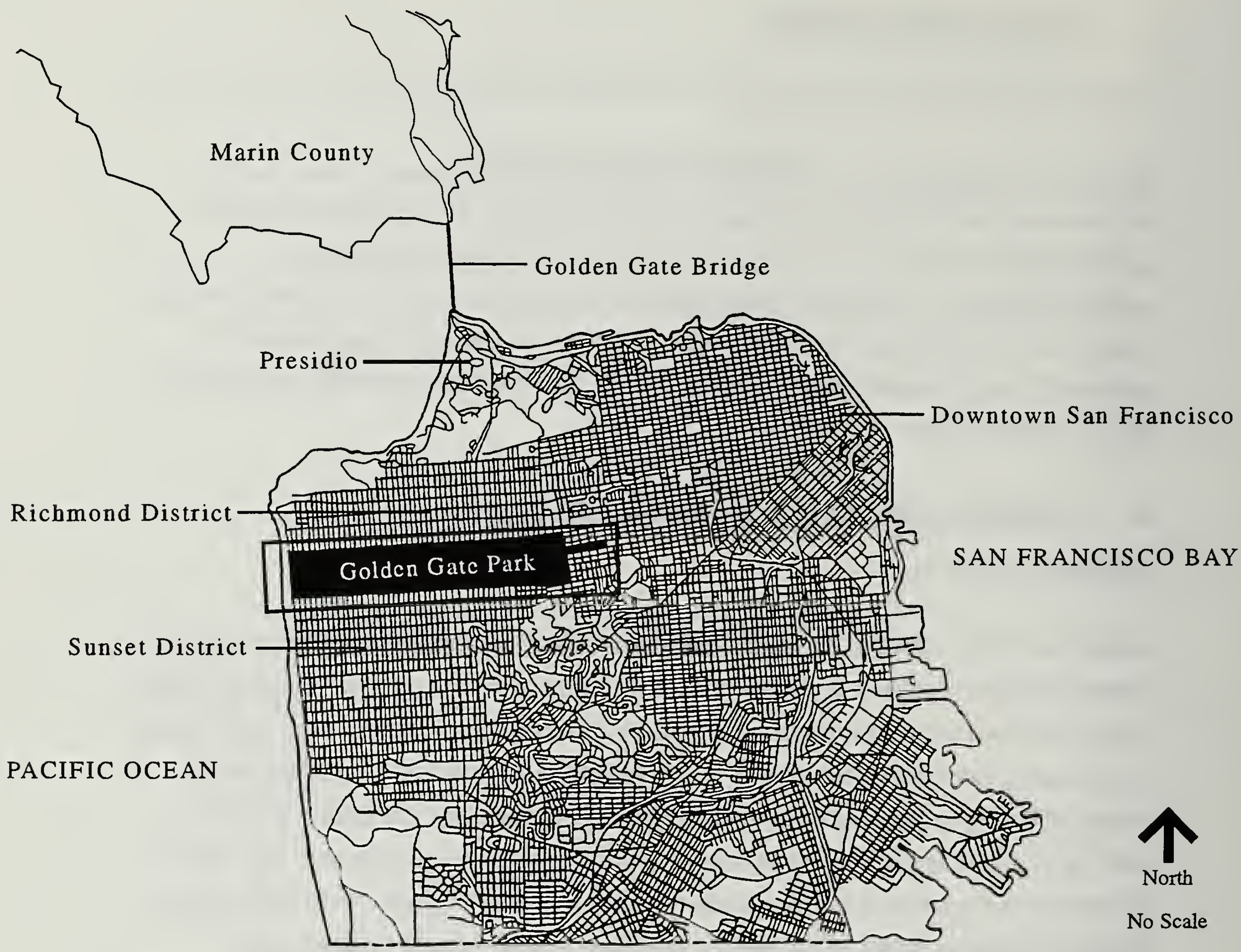
This Project Description section of the EIR is organized to provide general location and Park characteristics first, (Section II.A), followed by a table identifying recommended actions under each Park Master Plan element (Section II.B). Section II.C describes each individual recommended action, focusing on those actions that require CEQA review and analysis because of potential physical changes to Park environment. Section II.D describes the policies and approvals for recommended actions. Section II.E identifies the project schedule and estimated costs for implementation.

A. PROJECT LOCATION AND CHARACTERISTICS

PROJECT LOCATION

Golden Gate Park, subject of the March 1995 *Golden Gate Park Draft Master Plan* (the proposed project analyzed in this EIR), is a 1,017-acre urban Park in northwestern San Francisco (Figures 1 and 2). The main body of the Park area is about 3-1/2 miles long and 1/2 mile wide and bounded on the west by the Great Highway along Ocean Beach; on the north by Fulton Street and the Richmond District; on the east by Stanyan Street and the Haight-Ashbury District; and on the south by Lincoln Way and the Sunset District. Extending eastward approximately 3/4 mile from the main body of the Park is the block-wide strip known as the Panhandle, which is bounded on the west by Stanyan Street; on the north by Fell Street and the northern Haight-Ashbury neighborhood; on the east by Baker Street; and on the south by Oak Street and the Haight-Ashbury District.

Golden Gate Park's 1,017 acres include approximately 680 acres of forest, 130 acres of meadows, fields and open areas, 33 acres of lakes and 15 miles of drives. Designated Assessor's Block 1700, the Park is zoned P (Public Use) and is in the OS (Open Space) height and bulk district. According to Section 234.1(b) of the San Francisco *Planning Code,* principal uses permitted in districts zoned P are "structures and uses of governmental agencies not subject to regulation by this Code," and some structures and uses of agencies subject to *Planning Code* regulation and meeting other criteria. There are no specific height and bulk limits in the OS height and bulk district. Height and bulk of buildings and structures are determined in accordance with the objectives, principles and policies of the *San Francisco General Plan*. No variances, special



City and County of San Francisco

Map Inset

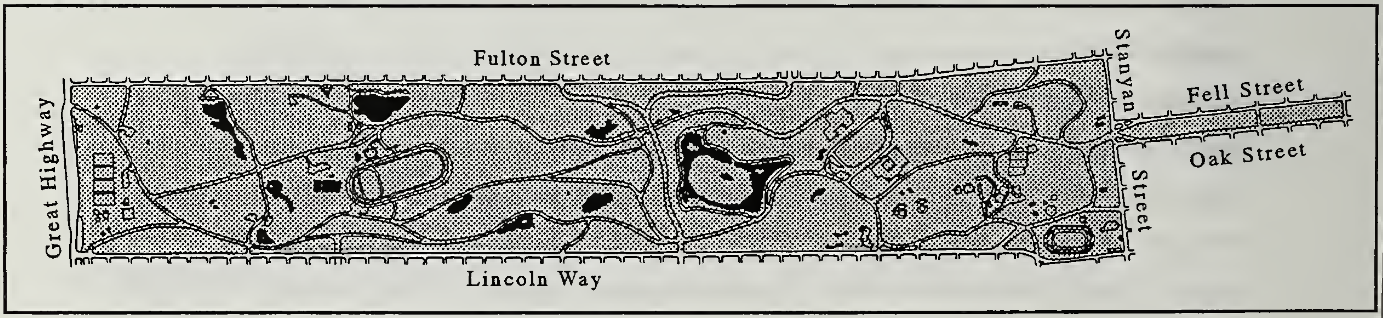


Figure 1

Location Ma

Source: Royston Hanamoto Alley & Abey/The Duffey Company

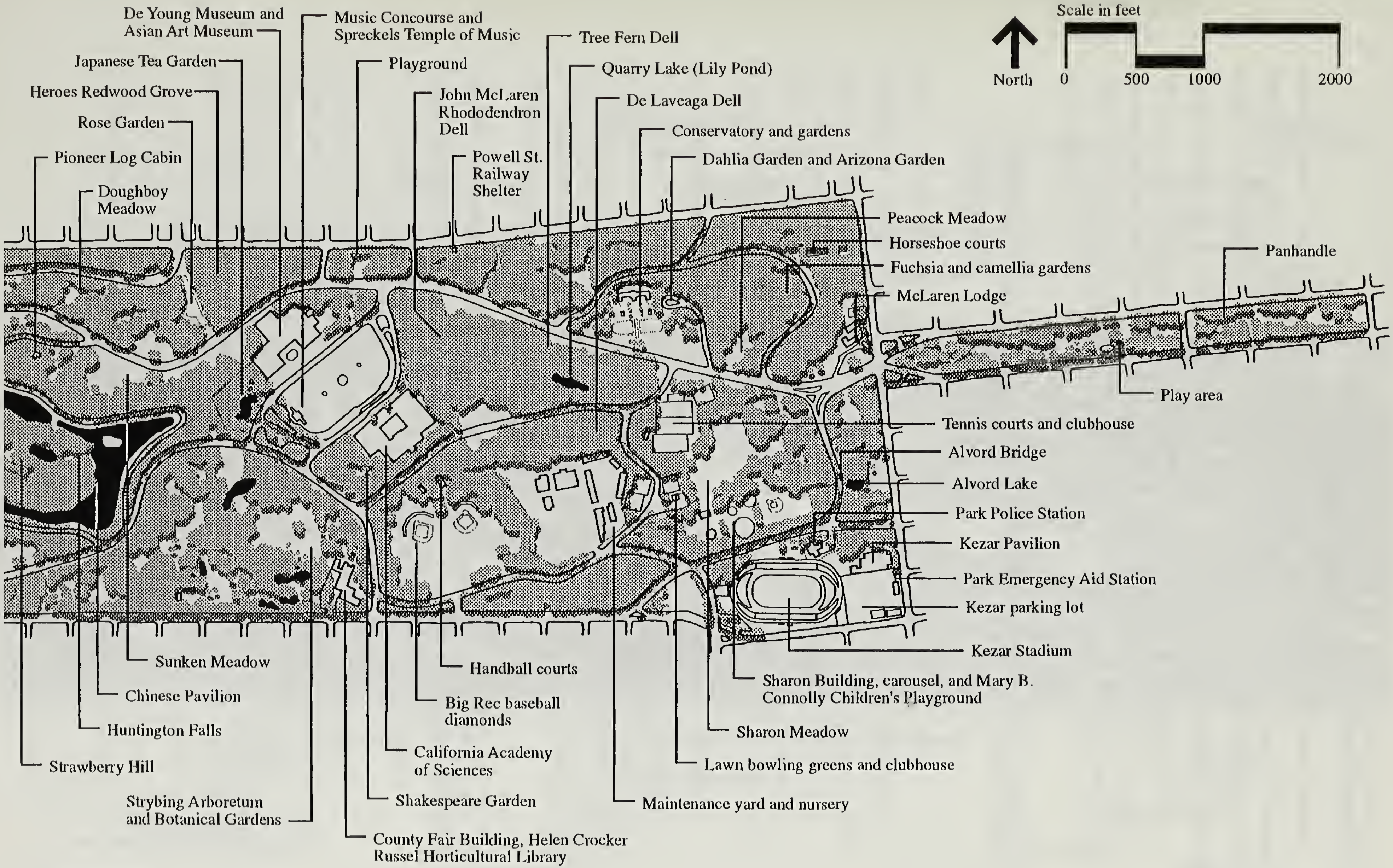

De Young Museum and Asian Art Museum
Music Concourse and Spreckels Temple of Music
Tree Fern Dell
Japanese Tea Garden
Playground
Quarry Lake (Lily Pond)
Heroes Redwood Grove
John McLaren Rhododendron Dell
De Laveaga Dell
Rose Garden
Conservatory and gardens
Pioneer Log Cabin
Powell St. Railway Shelter
Dahlia Garden and Arizona Garden
Doughboy Meadow
Scale in feet
North
0
500
1000
2000
Peacock Meadow
Horseshoe courts
Panhandle
Fuchsia and camellia gardens
McLaren Lodge
Play area
Tennis courts and clubhouse
Alvord Bridge
Alvord Lake
Park Police Station
Kezar Pavilion
Park Emergency Aid Station
Kezar parking lot
Kezar Stadium
Sunken Meadow
Handball courts
Sharon Building, carousel, and Mary B. Connolly Children's Playground
Chinese Pavilion
Big Rec baseball diamonds
Huntington Falls
Sharon Meadow
California Academy of Sciences
Strawberry Hill
Lawn bowling greens and clubhouse
Shakespeare Garden
Strybing Arboretum and Botanical Gardens
Maintenance yard and nursery
County Fair Building, Helen Crocker Russel Horticultural Library

Figure 2, p. 1

Eastern Park

Park Features and Places

Source: Royston Hanamoto Alley & Abey

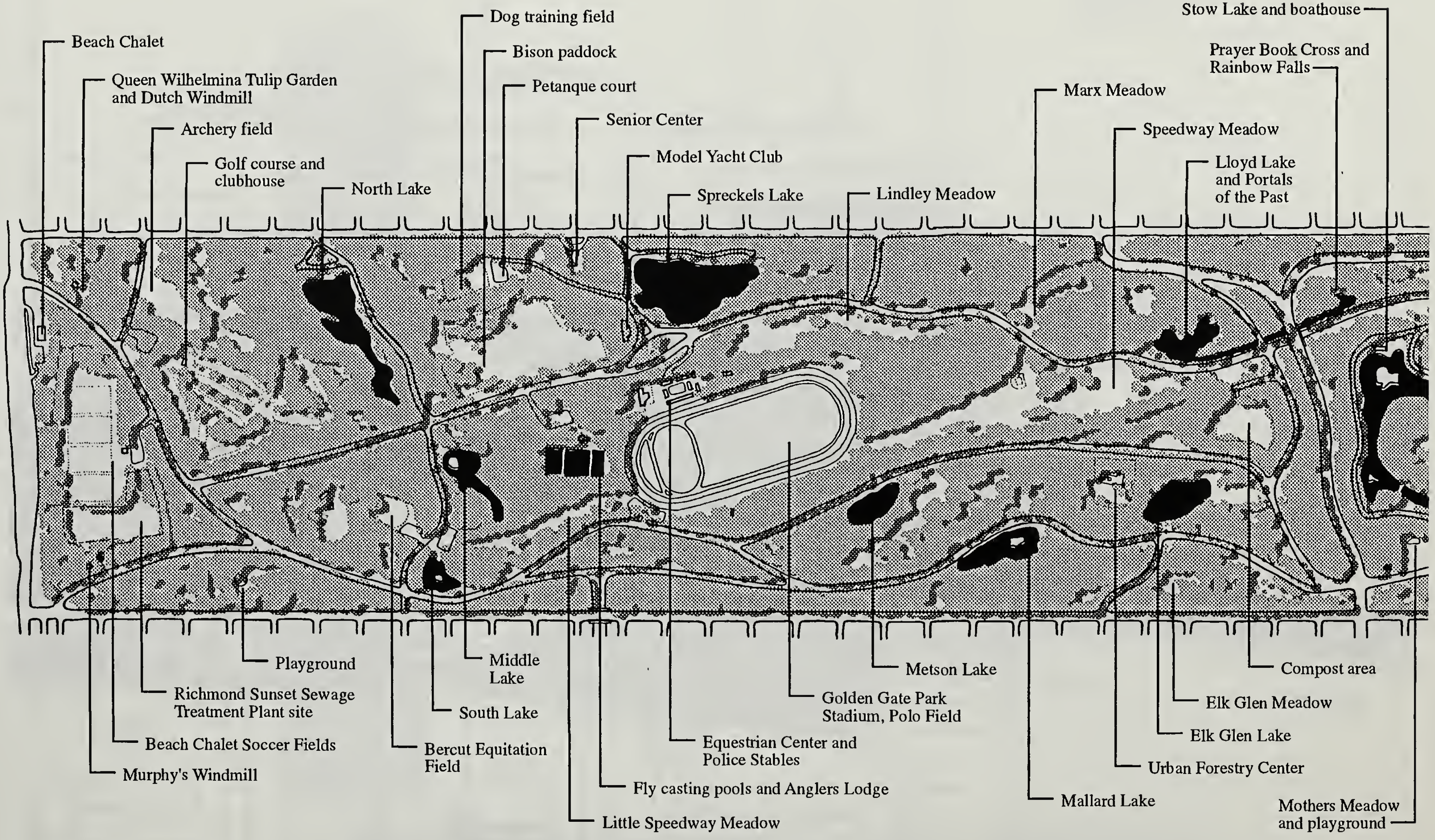


Figure 2, p. 2

Western Park

Park Features and Places

authorizations, or changes to the Planning Code or Zoning Map are proposed. Today, Golden Gate Park attracts an estimated 11 to 15 million visitors annually, half of whom are San Francisco residents, one quarter of whom reside elsewhere in the Bay Area, and one quarter of whom reside outside the Bay Area.[4] Examples of visitor activities in the Park are picnicking, walking, running, horseback riding, cycling, skating and skateboarding, participating in a wide variety of sports, attending concerts and other outdoor events, viewing wildlife and horticultural attractions, and visiting the Park's aquarium, science museum and fine arts museums. The Park's roadways also serve as routes for through traffic to destinations outside the park.

B. PARK MASTER PLAN ELEMENTS - RECOMMENDED ACTION CATEGORIES AND STATUS

Figure 3, the Park Master Plan Summary, summarizes by area the Park Master Plan-recommended actions. Tables 1 through 8 summarize the recommended actions by element (Park Landscape, Circulation, etc.), type of action, whether or not physical change would result, the funding and implementation status and schedule. Listed first (Category A) under each element are recommended actions, such as policies, studies and information collection, that would not result in physical changes. These policies and actions are not analyzed in this EIR.

Listed second (Category B) under each element are projects recommended for near-term implementation, but which are either exempt from environmental review or have already undergone environmental review and received necessary approvals. Some of these projects are under construction or are completed, but are included in the Park Master Plan for the purpose of plan integration and analysis of cumulative impacts. These actions/projects are discussed in this EIR for information purposes.

Recommended actions (categories A and B) that would not result in physical change, are categorically exempt under CEQA, or have already undergone required environmental review, or have been approved for implementation are identified by shading in Tables 1 through 8.

Listed third (Category C) under each Park Master Plan Element in Tables 1 through 8 are projects recommended for near-term implementation which could potentially result in physical changes to the environment and which have not yet received necessary environmental review. These projects are described in detail below, and are analyzed at a “Project Level” of detail in this EIR.

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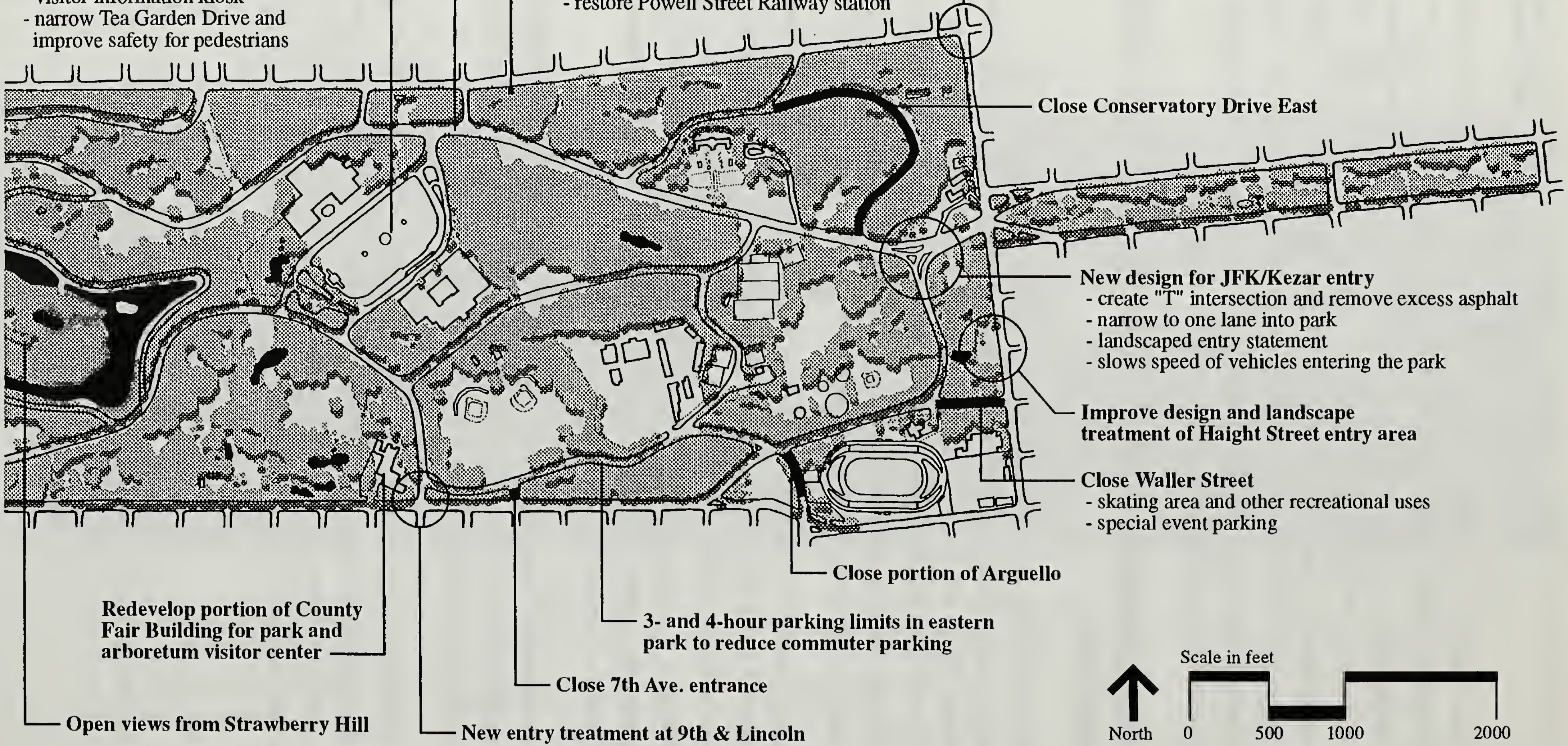
[4] San Francisco Recreation and Park Department, *Golden Gate Park Draft Master Plan*, March 1995, p.2-1 to 2-12.



Music Concourse restoration
- restore fountains
- replant trees
- close roadway behind bandstand and create a landscaped plaza for cafe seating and food carts
- new benches for bandstand events
- visitor information kiosk
- narrow Tea Garden Drive and improve safety for pedestrians

Landscape extensions along eastern JFK Drive
- defines parking lanes and single travel lanes
- prevents passing on right
- slows speeds

7th Ave. transit portal
- new pedestrian and bicycle entry to JFK Drive
- restore Powell Street Railway station

Improve traffic flow at Stanyan/Fulton intersection

Close Conservatory Drive East

New design for JFK/Kezar entry
- create "T" intersection and remove excess asphalt
- narrow to one lane into park
- landscaped entry statement
- slows speed of vehicles entering the park

Improve design and landscape treatment of Haight Street entry area

Close Waller Street
- skating area and other recreational uses
- special event parking

Close portion of Arguello

Redevelop portion of County Fair Building for park and arboretum visitor center

3- and 4-hour parking limits in eastern park to reduce commuter parking

Close 7th Ave. entrance

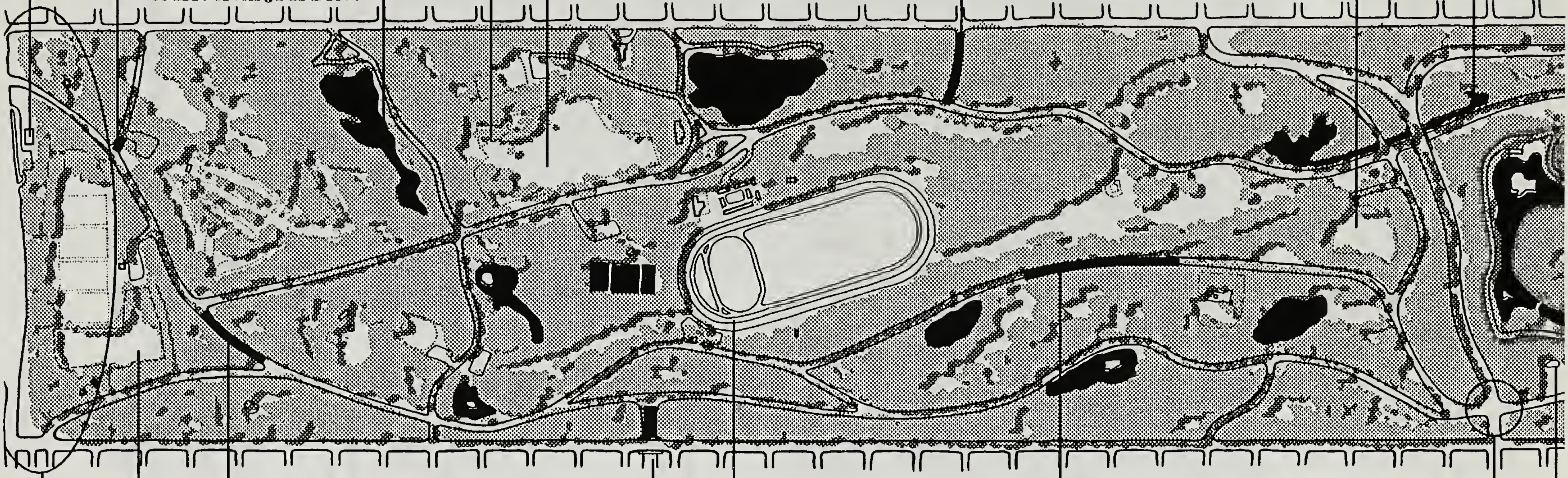
Open views from Strawberry Hill

New entry treatment at 9th & Lincoln
- improve pedestrian circulation
- improve views and visibility of arboretum
- announce entry
- plaza treatment
- entry signs

Figure 3, p. 1

Eastern Park

Draft Master Plan Summary



Restore park lakes
- new clay liners
- reconstruct edge treatments
- improve water quality and flow

Reopen Beach Chalet
- visitor center/murals display on ground floor
- cafe/restaurant upstairs

Close access to golf course from JFK Drive

Relocate log storage area

Bison paddock improvements
- new fencing
- accessible overlooks
- interpretive area
- new feeding barn
- habitat enrichment: trees, boulders, rubbing logs

Close 30th Ave. entrance

Reconstruct Rainbow Falls

New underground storage reservoir and pumping station for reconstructed water system

Close South Fork Drive

Richmond Sunset treatment plant site
- demolition of all treatment plant structures
- one additional soccer/sports field
- picnic area
- reforestation areas
- new site for log storage (if needed)

West end improvements
- improve landscape and entry treatments
- multi-use path along Great Highway
- restore Murphy's Windmill
- open vegetation along railroad trail and create linear meadow
- continue reforestation of western windbreak
- remove the millwright's house and replace with pavilion

Close Sunset Blvd. north of Lincoln Way
- remove grade separation
- create new signalized intersection with Lincoln Way

Resurface Polo Field bicycle track

Close portion of Middle Drive West
- designate for bicycle learning area and other recreational uses

Prohibit left turns from eastbound MLK Dr. to Crossover Drive

Renovate all children's play areas
- improve accessibility
- improve safety

Figure 3, p. 2

Western Park

Draft Master Plan Summary

Source: Royston Hanamoto Alley & Abey

Listed fourth (Category D) under each Park Master Plan Element in Tables 1 through 8 are projects that could potentially result in physical changes to the environment, but which are relatively long-range in nature and may not yet have been designated for funding. These items are analyzed at a "Program Level" of detail in this EIR and therefore will require further environmental review when more specific project information becomes available.

TABLE 1: PARK LANDSCAPE ELEMENT PROJECTS

EIR Category	Recommended Action	Physical Change Yes	No	Project Status	Schedule
A	**Wildlife/feral animal study** Information collection		✓	Unfunded - no approval required	To be scheduled - 1 -3 year target
B	**Reforestation and erosion control*** Minor alteration to landscape, rehabilitation	✓		EE 80.69 - 11/81 - ongoing	Ongoing
B	**Wildlife habitat improvement program*** Maintain existing habitat areas	✓		See reforestation, erosion control and lake reconstruction.	Ongoing, or part of approved zone project
C	**Lake reconstruction projects*** Rehabilitation/ maintenance of existing water features.	✓		Preliminary engineering and design studies completed. Master Plan to be approved by Recreation and Park Commission; Commission approval required prior to contract award for specific sites.	Lloyd 1998 South 1998 Mallard 1998 Middle 1999 Metson 1999 Spreckels 1999 Elk Glen 2000 Stow 2000 North 2001
C	**Reconstruction of Rainbow Falls*** Existing facility - reconstruction-	✓		Design initiated	1998 Target
C	**Rhododendron Dell rehabilitation and irrigation*** Repair/replace existing landscape	✓		Start design 3/98. Recreation and Park Commission approval required prior to contract award for specific site.	1999 Target

KEY TO TABLES 1 through 8

Shaded:	A. Not analyzed in detail in the EIR B. Previous Environmental Review/Exempt
Unshaded:	C. Analyzed at project-level in the EIR D. Program Level Review
Asterisk (*):	Project eligible for funding under the Golden Gate Park Infrastructure Bond Program, passed by San Francisco voters in 1992

TABLE 2: CIRCULATION ELEMENT PROJECTS

EIR Category	Recommended Action	Physical Change		Project Status	Schedule
		Yes	No		
A	**Crossover Drive undergrounding feasibility study** Information collection		✓	Included as part of 1985 Transportation Management Plan (85.80E - 6/7/85). Would have separate environmental review. Revised work plan to be submitted to Transportation Authority.	1997 target
A	**MLK Jr. Drive/Crossover grade separation feasibility study** Information collection		✓	Part of above item	1997 target
A	**Kezar Drive - study of metered parking -** Study of metered parking along Kezar Drive			Needs Recreation and Park Commission approval, funding	Not scheduled
A	**Shuttle bus demonstration/program** Information collection, demonstration		✓	Categorical exemption - 92.706E - 1/79/92 -Museum shuttle under way; seeking additional funding	Ongoing
A	**Develop a parking management plan for Concourse institutions and Park employees that considers the need of volunteers and employees and discourages single-occupant auto travel -** Information collection		✓	Needs staff to develop plan, funding	1 - 3 year target
B	**Accessibility/ADA path improvements.***	✓		Exempt determination - 1/23/95, Categorical Exemption Class 1(d) Transition plan completed. Restroom rehab under way; zone improvements approved by Recreation and Park Commission	Phased work to be completed 2005

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TABLE 2: CIRCULATION ELEMENT PROJECTS (CONT'D)

EIR Category	Recommended Action	Physical Change Yes	No	Project Status	Schedule
B	**Pedestrian path improvements*** Rehabilitation/repair/minor alteration of existing pathway	✓		Design under way for several locations. Recreation and Park Commission approval required for sites prior to award of contract. Recreation and Park Commission approved concept design for: • McLaren Lodge entry ramp • 9th Avenue and Haight entries	Phased work to be completed 2005
B	**Circulation sign survey/plan and installation** Review existing signs; update as needed	✓		Maintenance project Exempt	2 - 5 year target
B	**Kezar parking lot landscaping** New landscaping	✓		Approved as part of Kezar Corner Master Plan (Negative Declaration 87.523 ER 4/6/88). Needs Recreation and Park Commission approval of plan	1997 target
B	**Traffic signal at Kezar/Lincoln** Installation of traffic signal	✓		Approved as part of Kezar Corner Master Plan (87.523 ER 4/6/88).	1997 target
B	**Provide directional signage to Concourse institutions when roads are closed-** Signage on existing road	✓		Needs plan, funding, Recreation and Park Commission approval; Exempt	1 - 3 year target
C	**Road closures:** Closure of non-essential roads maintaining access to all facilities with existing roads	✓		Needs Recreation and Park Commission approval	
	• **Arguello Boulevard (segment near Kezar Drive)**	✓		Previously approved in Kezar Master Plan (Negative Declaration - 87.523 ER - 4/6/88). Needs Commission approval, funded in conjunction with Bike Path grant	1 - 3 year target

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TABLE 2: CIRCULATION ELEMENT PROJECTS (CONT'D)

EIR Category	Recommended Action	Physical Change		Project Status	Schedule
		Yes	No		
	Road Closures (cont'd.)				
	• **Conservatory Drive East**	✓		Needs Recreation and Park Commission approval, funding	1- 5 year target
	• **Middle Drive West (partial)**	✓		Needs Recreation and Park Commission approval, funding	1 - 3 year target
	• **Music Concourse Roadway (see Bandstand/Café Plaza)** modification of existing use	✓		Needs Recreation and Park Commission approval; may be done in part by Concessionaire	1 - 3 year target
	• **South Fork Drive**	✓		Needs Recreation and Park Commission approval, funding	1- 5 year target
	• **Waller Street**	✓		Previously approved in Kezar Master Plan (Negative Declaration - 87.523 ER - 4/6/88). Needs Recreation and Park Commission approval, funding	1 - 3 year target
	• **7th Avenue entry**	✓		Needs Recreation and Park Commission approval, funding	1- 5 year target
	• **30th Avenue entry**	✓		Previously approved in 1985 GGP Transportation Management Plan (85.806-6/7/85). Needs Recreation and Park Commission approval	1 - 5 year target
	• **47th Avenue(near JFK Drive))**	✓		Needs Recreation and Park Commission approval, funding	1- 5 year target
C	**Test use of permanent road closure barricades** Street closing equipment	✓		Existing Sunday closure; investigating different devices (from police barricade swing gates); need funding.	1997 target

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D. Program Level Review

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TABLE 2: CIRCULATION ELEMENT PROJECTS (CONT'D)

EIR Category	Recommended Action	Physical Change Yes	No	Project Status	Schedule
C	**JFK/Stanyan/Kezar entry improvements/traffic calming*** New landscaping, minor rechannelization (see description)	✓		Needs Recreation and Park Commission approval	1997 target
C	**Landscape extensions on eastern JFK Drive*** Landscape extension in parking lane by pedestrian crossings	✓		Needs Recreation and Park Commission approval, funding; may be partially implemented in conjunction with infrastructure replacement.	2 - 5 year target
C	**Tea Garden Drive Traffic Calming-** Traffic calming without impact on existing road capacity • **Landscape, 2-lane traffic** • **Landscaping - 2-lane traffic, parking on west side**	✓		May be included as part of utility trench/repair curbing improvements	1997 target
C	**Intersection paving reductions*** Redesign of existing intersections would not affect traffic flow	✓		Needs Recreation and Park Commission approval at various proposed sites	Implement over 10-year period as funding becomes available
C	**Stanyan/Fulton Intersection Improvements:** Restriping, signal re-timing, on-street parking removal	✓		Needs City funding, approval	1- 5 year target
C	**Parking limits in East Park** Regulation on existing streets	✓		Needs Recreation and Park Commission approval, funding	1 - 3 year target

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TABLE 2: CIRCULATION ELEMENT PROJECTS (CONT'D)

EIR Category	Recommended Action	Physical Change Yes	No	Project Status	Schedule
C	**Multi-Use path improvements*** Repair/improvement of existing facilities - See Master Plan Fig. 5-1c.	✓		Needs Recreation and Park Commission approval for specific sites (Note: speedway path rehab approved; build to new standards.)	Implement over 10-year period.
C	**Visitor drop-off - County Fair Building -** Designated, striped area	✓		Needs Recreation and Park Commission approval, funding	1 - 5 years
C	**Powell Street Railway Station - 7th Fulton**	✓			5-10 year target
D	**Martin Luther King Jr. Drive turn prohibition** Modify circulation route	✓		Needs Recreation and Park Commission approval, funding	4-year target
D	**Sunset Boulevard roadway closure** Modify circulation route	✓		Needs Recreation and Park Commission approval, funding	7-year target

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TABLE 3: RECREATION ELEMENT PROJECTS

EIR Category	Recommended Action	Physical Change Yes	No	Project Status	Schedule
A	**Trail brochures (walking, bicycling, equestrian)**		✓	Educational program	1 - 3 year target
A	**Special Events**	✓		Policies, standard of appropriateness	
B	**Play Area renovations (*partial)** Repair, minor alterations of existing facilities	✓		10th Avenue/Fulton design initiated; Remodels - Consumer Product guidelines - safety, ADA, amenity	2 - 5 year target
B	**Handball court repairs** Repair of existing facilities		✓	Needs funding	3 - 7 year target
B	**Athletic Field Irrigation/Rehabilitation**		✓	Resod, drainage	Ongoing
B	**Archery field -** target replacement		✓	Maintenance	
C	**Trail and path improvements/ rehabilitation* - Regional Trail connections** Repair, minor alterations of existing facilities	✓		Assessment done - erosion control program underway	1995-2005
C	**Golf Course irrigation system renovation**	✓		Part of infrastructure projects	1997
C	**Horseshoe courts renovation/relocation**	✓		Move near Senior Center	3 - 5 year target
C	**Mountain bike trail** Educational program, trail designation	✓		Public education program in progress; trail designation needs funding and Commission approval	1 - 3 year target

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TABLE 4: VISITOR FACILITIES ELEMENT PROJECTS

EIR Category	Recommended Action	Physical Change Yes	No	Project Status	Schedule
A	**Park visitor brochures and maps -** Educational program		✓	Needs funding	Ongoing
A	**Park Concessions**		✓	Commission must evaluate appropriateness to Park on case-by-case basis (cross reference Buildings Element)	
B	**Park feature signs** Replacement of existing signs	✓		Replacement signs being installed as part of Park maintenance	1995 - 2000 - phased replacement
B	**Beach Chalet Visitor Center*(*partial)** restoration of existing structure	✓		Exempt determination 6/18/93. Categorical Exemption Class I (d), Certificate of Appropriateness 8/1/94, approved by Recreation and Park Commission, federal and bond funding	construction completed 1997
B	**Ongoing restoration of restrooms*** Repair, minor alteration	✓		Permits received for 10 sites for rehabilitation; design in progress for other restrooms	Complete rehab by 10/96 of 10 sites, phased rehab by 1998
B	**Comprehensive entry signs***	✓		Design in progress Exempt	1996-2000 - phased placement
C	**Music Concourse information kiosk - 75 sq. ft.** New construction of small temporary structure	✓		Design in progress; needs Recreation and Park Commission approval	1 - 2 year target
C	**Tea Garden -new restroom ADA accessible, 400 sq. ft.**	✓		Needs Recreation and Park Commission approval, funding; building expansion would need Board approval	1 - 2 year target
D	**Eastern Park visitor center within existing building**		✓	Needs Recreation and Park Commission approval, funding	4 year target

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TABLE 5: BUILDINGS AND MONUMENTS ELEMENT PROJECTS

EIR Category	Recommended Action	Physical Change Yes	Physical Change No	Project Status	Schedule
B	**Park furnishings:**			Replacement, or new furnishings to meet code requirements	
	• **benches***		✓	Friends initiated Bench donation program	Ongoing
	• **picnic tables and facilities***		✓	To be coordinated with disabled access program	Ongoing
	• **trash receptacles***		✓	May be installed in conjunction with entry rehabilitation	1996 - 2000
B	**Pioneer Log Cabin Kitchen** Rehabilitation of existing facility		✓	Approved by Recreation and Park Commission; in progress	1996
B	**Statues and Monuments:** • **Conservation treatment/ maintenance -** Repair/maintenance of existing facilities		✓	Needs funding; Art Commission raising funds	1995 - ongoing
B	**Beach Chalet Visitor Center (*partial)** restoration of existing structure (see also Visitor Facilities Element)		✓	Exempt determination 6/18/93, Categorical Exemption Class 1(d), Certificate of Appropriateness 8/19/94, approved by Recreation and Park Commission, federal and bond funding	construction completed, opened in early 1997
B	**Carousel:** • **structural and other improvements** • **curtain wall** • **organ restoration** Restoration of existing facility		✓	Needs Recreation and Park Commission approval, funding Restoration exempt	2 - 5 year target
B	**Equestrian Center improvements -** rehabilitation of existing facility	✓		Needs Recreation and Park Commission approval; funded by concessionaire; utilities funded by bond; General Rule exclusion 15061(b)(3), EE 93.547E - 10/27/93	1 - 3 year target

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TABLE 5: BUILDINGS AND MONUMENTS ELEMENT PROJECTS (CONT'D)

EIR Category	Recommended Action	Physical Change Yes	Physical Change No	Project Status	Schedule
B	**Arboretum Classroom -** Relocation of previously approved facilities - see Master Plan, pg. 13-8	✓		9/10/90 - 90.437R; needs Recreation and Park Commission approval of new location, funding	1 - 5 year target
B	**Arboretum Nursery -** Relocation of facility - see Master Plan, pg. 13-8	✓		9/10/90 - 90.437R; approved by Recreation and Park Commission; needs funding	1 - 5 year target
B	**McLaren Lodge -** Rehabilitation of existing facility: • **accessibility improvements***	✓		Recreation and Park Commission approved; eligible for bond funding; exempt	5 - 10 year target
C	**McLaren Lodge -** Rehabilitation of existing facility: • **structural improvements***	✓		Needs Recreation and Park Commission approval and funding; exempt	5 - 10 year target
C	**Conservatory of Flowers Rehabilitation/Addition -** Restoration of existing facility: • **accessibility improvements** • **structural improvements**	✓		Needs Recreation and Park Commission approval, accessibility improvements are eligible for bond funding. Structural work needs funding	1 - 5 year target
C	• **Addition of 3,000 sq. ft. of nursery facilities**	✓		Needs Recreation and Park Commission approval, funding; Board Approval	1 - 5 year target
	• **Conservatory Rose House reconstruction -** Reconstruction of demolished structure	✓		Certificate of Appropriateness for demolition 7/20/94 - 94.219A. Needs Recreation and Park Commission approval, funding	1 - 5 year target
C	**Sharon Building -** Convert to restaurant use and children's center; find another area to relocate fine arts program (see Master Plan, p. 8-2)		✓	Needs Recreation and Park Commission approval, funding (Cross reference Traffic)	1 - 5 year target

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TABLE 5: BUILDINGS AND MONUMENTS ELEMENT PROJECTS (CONT'D)

EIR Category	Recommended Action	Physical Change Yes	No	Project Status	Schedule
C	**County Fair Building -** Rehabilitation of an existing facility: • **accessibility improvements*** • **structural improvements and asbestos treatment** • **building redesign and renovation**		✓	Needs Recreation and Park Commission approval, funding; Arboretum Society to raise funds Categorical Exemption Class 1(d), 1/23/95	1 - 5 year target
C	**Urban Forestry Center rehab (*partial) -** Rehabilitation of existing facilities, minor alteration	✓		Needs Recreation and Park Commission approval; bond will fund utility repair	Utilities - 1996
C	**Equestrian Center - addition of Caretaker Unit - 1000 sq. ft. -** Existing facility - addition less than 2,500 sq. ft.; see Master Plan, p. 8-2	✓		Needs Recreation and Park Commission approval; funded by Concessionaire	2 - 3 year target
C	**Tennis Clubhouse - 1,500 sq. ft. expansion -** Existing facility - addition less than 2,500 sq. ft. - see Master Plan, p. 8-2	✓		Needs Recreation and Park Commission approval; ADA improvements - bond-funded	1998 target
C	**Golf Clubhouse - 750 sq. ft. expansion -** Existing facility - addition less than 2,500 sq. ft. - see Master Plan, p. 8-2	✓		Needs Recreation and Park Commission approval; ADA improvements - bond-funded	1 - 3 year target

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TABLE 5: BUILDINGS AND MONUMENTS ELEMENT PROJECTS (CONT'D)

EIR Category	Recommended Action	Physical Change Yes	No	Project Status	Schedule
C	**Millwright's House Demolition/Construct New Recreation Pavilion -** Demolition of existing structure, construction of new structure on site; see Master Plan, pg. 13-10	✓		Grant-funded; would require historic architectural survey evaluation and determination of eligibility as historic property	5-10 year target
D	**Kezar Pavilion -** Rehabilitation of existing facility: • **structural improvements** • **accessibility improvements***	✓		Needs Recreation and Park Commission approval, funding; accessibility improvements are eligible for bond funding	5 - 10 year target
D	**Murphy's Windmilll (south) restoration -** Rehabilitation of existing facility	✓		Needs Recreation and Park Commission approval, funding	5 - 10 year target
D	**Park Emergency Hospital -** Rehabilitation of existing facility	✓		Needs Recreation and Park Commission approval, funding	5-year target
D	**Arboretum Library basement storage area disabled access - 1,500 sq. ft. -** Existing facility - addition of less than 2,500 sq. ft. - see Master Plan, pg. 13-8	✓		Needs Recreation and Park Commission approval, funding	5-year target

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TABLE 6: UTILITIES AND INFRASTRUCTURE ELEMENT PROJECTS

EIR Category	Recommended Action	Physical Change		Project Status	Schedule
		Yes	No		
B	**Pedestrian tunnel/bridge repair*** - Repair/ maintenance of existing facilities (grout, repaint, patch) -		✓	Repair assessment completed; prepare informal contracts for minor repairs	1996
B	**Tennis Court Lighting** - Night lighting of tennis courts,	✓		Needs Recreation and Park Commission approval and funding	1996-2005
B	**General utilities repair/replacement:** • **repair/improve electrical distribution system and service*** - repair/replace existing utility - see description	✓		Several specific sites have been included in Categorical Exemption 1/23/95; Recreation and Park Commission will approve utility improvements in each Park zone - bond-funded Ongoing utility replacement - Categorical Exemption 1/23/95	Phased replacement - 1995-2005 at various sites
B	• **replace Park lighting - fixtures*** - repair Park lighting to meet current codes	✓		Ongoing utility replacement - Categorical Exemption 1/23/95	Phased replacement - 1995-2005 at various sites
B	• **sewer and drainage culverts replacement***	✓		Ongoing utility replacement - Categorical Exemption 1/23/95	Phased replacement - 1995-2005 at various sites
B	**Reconstruct water supply system:** • **Automatic irrigation*** - Replace existing utility	✓ ✓		Several specific sites have been included in Categorical Exemption 1/23/95; Recreation and Park Commission will approve each zone. Ongoing with utility rehab program; bond fundable	Ongoing to 2005 1995-2005
B	• **refurbish wells and pumps*** - Maintain/replace existing facility	✓		Prepare engineering specifications for testing replacement wells	1997-1998

KEY TO TABLES 1 through 8

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Unshaded:	C. Analyzed at project-level in the EIR D. Program Level Review
Asterisk (*):	Project eligible for funding under the Golden Gate Park Infrastructure Bond Program, passed by San Francisco voters in 1992

TABLE 6: UTILITIES AND INFRASTRUCTURE ELEMENT PROJECTS (CONT'D)

EIR Category	Recommended Action	Physical Change Yes	No	Project Status	Schedule
	Reconstruct Water Supply System (cont'd)				
C	• **water distribution and control system*** Replace existing facility - reclaimed water/well water	✓		Ongoing with utility rehab program Comply with Recycled Water, Ordinance 391-91	1997-2005
C	• **underground reservoir and central pumping station** -Replace existing with new centrally located larger improved facility	✓		Needs Recreation and Park Commission approval; preliminary design under way. Above-ground pump structure 75 x 35 design variant	1997 - 1999
C	• **pumphouse entry structure* - 600 sq. ft.** Construction of new service building	✓		Needs Recreation and Park Commission approval; preliminary design under way	1997 target
D	• **Return reservoir sites to parkland** - North Hill, Strawberry Hill, Waterworks	✓		Needs Recreation and Park Commission approval	10-year target

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TABLE 7: MAINTENANCE AND OPERATIONS ELEMENT PROJECTS

	Recommended Action	Physical Change Yes	No	Project Status	Schedule
B	**Additional screen planting at various maintenance facilities** Minor landscaping	✓		Part of ongoing maintenance/forestry Exempt	Ongoing
C	**Western Park maintenance headquarters reconfiguration (partial)***	✓		Some utility rehab in area; Recreation and Park Commission approval needed	4/98 target
C	**Log storage area relocation and consolidation**	✓		To be moved to demolished Richmond Sunset Treatment Plant site or compost area	1 - 3 years

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TABLE 8: SPECIAL AREAS ELEMENT PROJECTS

EIR Category	Recommended Action	Physical Change Yes	No	Project Status	Schedule
	Music Concourse:				
B	• **Fountain renovation** - repair existing facility		✓	Completed	1994
B	• **Replanting of 124 trees*** - maintenance of existing landscape	✓		Ongoing Forestry program Exempt	1 - 5 year target
B	• **Replacement of lights*** - replacement of existing utility	✓		Preliminary design under way; Recreation and Park Commission to review; Exemption - 1/23/95	1 - 3 year target
B	• **Repair of stairs* and paths** - repair of existing facility	✓		Preliminary design under way; Recreation and Park Commission to review; Exemption - 1/23/95	1 - 3 year target
B	• **Accessibility improvements*** - repair of existing facility	✓		*Preliminary design under way; Recreation and Park Commission to review; Exemption - 1/23/95*	Ongoing
B	• **Bandstand annex improvements** - repair/rehabilitation of existing facility	✓		Needs Recreation and Park Commission approval, funding	2 - 5 year target
C	• **Cafe plaza construction** - Minor alteration of land, new landscape	✓		Needs Recreation and Park Commission approval, funding	1 -3 year target
C	• **Replace temporary food vending facility with permanent structure (400 sq. ft.)** - construction of replacement structure under 2,500 sq. ft.	✓		Will need Recreation and Park Commission approval, funding	1 -4 year target
C	• **Consolidate maintenance and parking lot structures (1,000 sq. ft.)** - construction of service structure under 2,500 sq. ft.	✓		Will need Recreation and Park Commission approval, funding	2 - 4 year target
C	• **Information Kiosk - 75 sq. ft.** - construction of small structure	✓		Funded by Friends; design under way by Friends; needs Rec. and Park Commission approval	1 - 2 year target

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TABLE 8: SPECIAL AREAS ELEMENT PROJECTS (CONT'D)

EIR Category	Recommended Action	Physical Change Yes	No	Project Status	Schedule
	Strybing Arboretum and Botanical Garden:				
B	• **Landscape improvements** - Garden Promenade, demonstration garden - minor alteration of land, new landscape	✓		Needs Recreation and Park Commission approval; Arboretum Society to fund	1 - 5 year target
B	• **Relocation of nursery** - relocate facility west of existing location	✓		Relocation approved - EE 90.437R; 9/10/90; Arboretum Society to fund.	1 - 5 year target
B	• **Replace public restroom** - replacement structure to meet access requirements	✓		Recreation and Park Commission to approve; bond-funded; Exempt	1997-1998
B	• **Relocation of classroom** -relocation of previously approved structure	✓		Relocation approved - EE 90.437R; 9/10/90. Needs Recreation and Park Commission approval of new site; Arboretum Society to fund	1 - 5 year target
B	• **Redesign of existing garden entrances** - minor alteration of land, new landscape	✓		Needs Recreation and Park Commission approval; Arboretum Society to fund; Exempt	1 - 5 year target
C	• **Renovation of County Fair Building** - rehabilitation of existing facility	✓		Needs Recreation and Park Commission approval; Arboretum Society to fund	1 - 5 year target
C	• **Creation of new western entrance** - minor alteration of land, new landscape	✓		Needs Recreation and Park Commission approval; Arboretum Society to fund	1 - 5 year target
D	• **Library basement storage/disabled access** - existing facility addition	✓		Needs Recreation and Park Commission approval; Arboretum Society to fund	1 - 5 year target
	Richmond Sunset Treatment Plant Site:				
B	• **Richmond-Sunset Plant Demolition**	✓		Project approved - EE 76.389, Mitigation for Oceanside Treatment Plant construction	Completed in 1996

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TABLE 8: SPECIAL AREAS ELEMENT PROJECTS (CONT'D)

EIR Category	Recommended Action	Physical Change Yes	No	Project Status	Schedule
	Richmond Sunset Treatment Plant Site (Cont'd):				
B	• **Sports field** - new landscape, expansion of existing recreation	✓		Project approved - EE 76.389, funded by Oceanside Mitigation funds; sports field, exempted from environmental review	In design 1998-1999
B	• **Reforestation areas*** - repair, maintenance of existing landscape	✓		Part of ongoing reforestation program	1998 target
B	• **Picnic area** - new landscape/Park amenity	✓		Needs Recreation and Park Commission approval; funded by Friends	1997 target
C	**Log storage area**	✓		Needs Recreation and Park Commission approval	1 - 3 year target
C	**Bison Paddock**	✓		Needs Recreation and Park Commission Approval	1998 target
C	**Parking area** - minor alteration of land southwest of the proposed log storage area	✓		Needs Recreation and Park Commission approval	1997-1998 target
C	**Stanyan/Kezar/JFK Drive entry*** - new landscape - minor rechannelization	✓		Recreation and Park Commission to approve; bond-funded	1 - 3 year target
B	**De Laveaga Dell/AIDS Memorial Grove** - minor alteration of land, rehabilitation of existing landscape	✓		Approved by Recreation and Park Commission; rehabilitation under way - private donations	1997 - estimated completion
	Entry improvements:				
B	• **Entry signs for all entries***	✓		Design under way; Recreation and Park Commission to approve	1996 - 2000
B	• **Stanyan and Hayes pedestrian/landscape improvement*** -- rehabilitate existing landscape, disabled access	✓		Design under way; Recreation and Park Commission to approve; ADA bond-funded	1998 target
B	• **Stanyan and Haight, landscape, disabled access*** - landscape rehabilitation	✓		Recreation and Park Commission approved; bond-funded; Categorical Exemption 1/23/95	1997 target

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TABLE 8: SPECIAL AREAS ELEMENT PROJECTS (CONT'D)

EIR Category	Recommended Action	Physical Change Yes	Physical Change No	Project Status	Schedule
	Entry improvements (Cont'd):				
B	• **9th and Lincoln, landscape rehab, disabled access*** - rehabilitate existing landscape	✓		Recreation and Park Commission approved; bond-funded	1 - 3 year target
B	• **19th and Lincoln, landscape rehab, disabled access*** - rehabilitate existing landscape	✓		Needs Recreation and Park Commission approval; bond-funded	1 - 3 year target
B	• **Lincoln and MLK Drive (west end)** -new Park landscape	✓		Recreation and Park Commission approved; bond-funded	1997 target
B	• **Great Highway and Soccer fields (pedestrian)** - new landscaping	✓		Recreation and Park Commission approved; bond-funded	1997 target
B	• **Great Highway and JFK Drive*** - new landscaping	✓		Recreation and Park Commission approved; bond-funded	1997 target
B	• **Fulton and Arguello*** - rehabilitate existing landscape	✓		Needs Recreation and Park Commission approval; eligible for bond funding	3 - 6 year target
	West End:				
B	• **Western Park Entries***	✓		Preliminary design approved by Recreation and Park Commission; funded by Bond/Friends	1997 target
C	• **Old Railroad trail improvements**	✓		Friends to fund; staff to approve landscape plan	1 - 2 year target
C	• **Western Park Frontage**	✓		Preliminary design approved by Recreation and Park Commission; funded by Friends grant	Start date - 1996

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C. DESCRIPTION OF MASTER PLAN-RECOMMENDED ACTIONS ANALYZED IN THIS EIR

This section describes, in greater detail, those projects enumerated in Tables 1 through 8 that are analyzed in this environmental document as part of the cumulative analysis (Category B projects), at a project level (Category C projects), or at a program level (Category D projects). The appropriate category is listed in parenthesis after each project.

PARK LANDSCAPE ELEMENT

One proposed action, the wildlife and feral animal study will not result in physical change to the Park and is therefore not discussed further in this EIR. The reforestation and erosion control measures have environmental clearance and the wildlife habitat improvement program would typically be exempt from environmental review. They are included in this document for inclusion in the cumulative analysis. The lake reconstruction projects, the reconstruction of Rainbow Falls, and the Rhododendron Dell rehabilitation and irrigation projects are included for analysis at a project level in this EIR.

Reforestation and Erosion Control (B)

Reforestation and erosion control are on-going Park maintenance activities that have been addressed in previous environmental review documents (EE 80.69, November 1981) and have been approved by the Planning and Recreation and Park Commissions for implementation. These actions would have beneficial environmental consequences because they are necessary to preserve and enhance the park landscape. No further discussion of these actions in this EIR occurs, except as applicable under cumulative impacts.

Wildlife Habitat Improvement Plan (B)

Under the Master Plan, actions are proposed to improve habitat and enhance a stable wildlife population park-wide. Proposed actions include: preserving the woodland/meadow edge zone; leaving ground cover intact; leaving snags, dead trees and branches standing as long as possible; controlling domestic animals released into the park; prohibiting feeding of pigeons, posting signs to inform the public why they should not feed the animals; continuing to conduct inventories of wildlife; limiting human disturbances; removing and discouraging invasive aquatic and terrestrial weeds; maintaining water features to support wildlife; increasing interpretive programs focused on nature and wildlife; and designating important habitat areas within the park. These actions are part of the on-going Park maintenance program and are also a part of the reforestation and erosion control and lakes reconstruction elements of the Park Master Plan. The wildlife habitat improvement actions are included in this EIR for informational purposes and potential cumulative effects. If considered individually they would typically be exempt from environmental review.

Lake Reconstruction Projects (C)

The proposed lake restoration actions are discussed and analyzed in detail in this EIR. The lakes within Golden Gate Park are artificial and have several problems, including poor integrity of lake liners, deterioration of lake edges, poor water quality, and accumulation of bottom sediment. Several of the lakes have substantial leaks resulting from deterioration of their clay liners over the last 80 to 100 years. The amount of water loss due to such leaks from all lakes has been estimated at approximately 560,000 gallons per day[5], some of which recycles back through the ground to recharge the aquifer. In addition, the edges around several of the lakes are eroding due to varying water levels, wind generated waves, steep bank conditions, wildlife, and human activity. Some of the shallow lakes within the park, including Mallard, Metson and North Lakes, have the least flow and the poorest water quality due to warm water and eutrophication. (Eutrophic lakes have increased algae growth resulting in reduced oxygen levels adversely affecting fish and other organisms). The quality of water in the lakes is also affected by waterfowl and stormwater runoff. The shallowness of several lakes is partially a result of the amount of sediment in the lakes. The sediments contain organic debris, soil, litter, and other debris, and range in thickness from a few inches to over two feet.

Lake rehabilitation projects included in the Park Master Plan would be funded under the 1992 Golden Gate Park Infrastructure Bond Program. Projects include deepening of lakes, installation of new lake liners to control seepage losses, improvement of lake edges to control erosion and limit nutrient and sediment inflows, addition of lake aeration equipment for water to mix and maintain high dissolved oxygen levels, and installation of pumping systems to exchange and recirculate water. As part of the General Utilities Repair and Replacement projects (see page 64), drainage pipes and catch basins that presently flow into the lakes (including some carrying roadway runoff) would be repaired and replaced as necessary to deliver the runoff to the City's combined sanitary/storm sewer system.

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[5] Concept Design Report-Lakes Rehabilitation by ACE Pacific Co., October 1994.

Under the Park Master Plan, nine lakes would be reconstructed. In order of priority, the lakes are Lloyd, Spreckels, Metson, Mallard, Middle, South, Elk Glen, North and Stow[6] (see Figure 4). The lakes rehabilitation would include the following actions:

- Removal, drainage and disposal of lake bottom sediments over a period of ten years (estimated to be 50,000 cubic yards of undrained spoils, to drain/dry, holding areas near lake sites, and then to be used as a soil amendment in the park).
- Deepening of the lakes (dredging from 0-35 inches; dredge spoils estimated to be 9,000 to 20,000 cubic yards of spoil per year undrained) to an average depth of 6.7 feet and maximum depth of eight feet (see previous bullet for disposal).
- Sealing lake bottom with clay (two six inch thick lifts for a total thickness of 12 inches) from local Bay Area clay deposits.
- Installing aeration/mixing equipment in selected lake coves and pockets (about 25 standardized aeration systems operated by a low horsepower electric blower).
- Providing water connections at each lake to accommodate fresh water inflow and overflow drains to improve water circulation and water turnover.
- Providing fixed outlets for automatic level control.
- Providing an overflow system at each lake to drain into a recharge basin near the lake and allow recharge of the groundwater.

Although natural clay is the proposed liner material, some water loss would still occur. Because most lakes would still have natural, vegetated edges for aesthetic reasons and to provide wildlife habitat, groundwater recharge would occur around lake edges. Where feasible, edge designs would permit disabled access to lakes. Lake edge design includes safety measures to minimize lake accidents.

Sediment would be removed during the lake rehabilitation work from lakes with excessive accumulations. Center lake depths would be increased to an average of 6.7 feet to check growth of aquatic vegetation. Erosion and runoff would be controlled around lakes by eliminating storm drainage outlets into the lakes and creating upslope drainage swales to carry surface drainage away from the lakes. Drainage pipes that presently carry stormwater runoff from nearby roads, pathways and slopes into lakes would be intercepted and runoff diverted into leach fields and the city sewer system.

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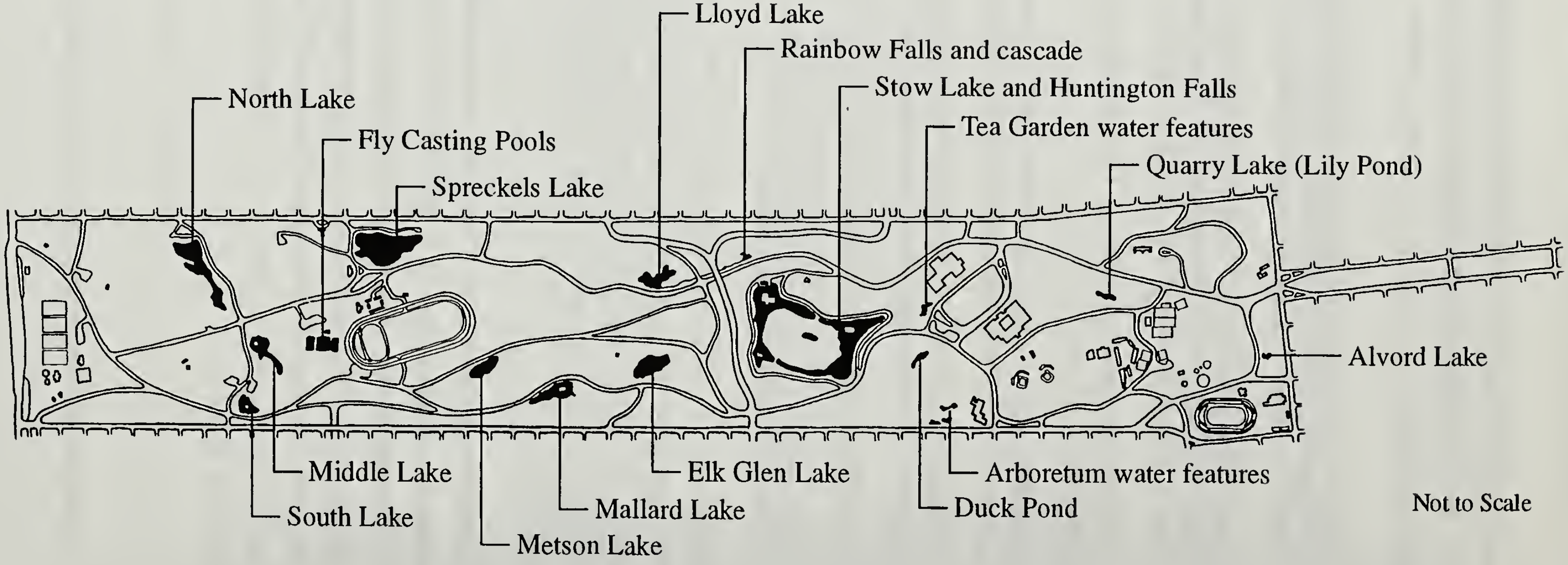
[6] Shannon Maloney, DPW Project Manager, phone conversation with M. Duffey, February 28, 1997.

Golden Gate Park Lakes:

Lake	Size	Constructed	Character/function
Stow Lake	12.7 acres	1893	naturalistic, boating, reflecting
Spreckels Lake	5.9	1902	model boating
North Lake	3.8	1898	naturalistic, most "wild" of park lakes
Elk Glen Lake	1.8	1935	naturalistic, water system reservoir, reflecting
Fly casting pools	1.5	1936	fly casting
Lloyd Lake	1.4	1892	naturalistic, reflecting
Mallard Lake	1.4	1909	naturalistic, reflecting
Middle Lake	1.3	1898	naturalistic, reflecting
South Lake	1.1	1898	naturalistic, reflecting
Metson Lake	1.0	1906	naturalistic, reflecting
Lily Pond	.5	1902	naturalistic, reflecting
Arboretum ponds	.5	NA	naturalistic, reflecting
Alvord Lake	.2	1882	naturalistic, reflecting
Rainbow Falls bowl	.2	1930	naturalistic, reflecting



Not to Scale

Figure 4

Lakes and Water Features

The primary lake water quality improvement proposed under the Park Master Plan is to construct a system designed to increase the rate of well water pumped into Park lakes. The proposed method is to first reduce the rate of leakage in each of the lakes by installing new lake liners and improving lake edges, then to install an inflow-outflow system by which well water would be introduced at one end of every lake and exit at the other to a nearby recharge basin. According to design criteria established for Park lakes, a minimum total flow of 500 gallons per minute (gpm) for the nine lakes is required during dry summer months to achieve improved water quality.[7]

The proposed well water delivery and discharge system would be individually tailored to the specific size and other requirements of each lake. Park well water would be pumped from a well water storage tank (a proposed underground reservoir, described below) through a pressurized main distribution line equipped with a computerized irrigation controller. Supply lines with computerized valve controls would branch from the main distribution line to each lake individually. Each lake would be equipped with its own delivery piping system and separate overflow system. Outflow from each lake would drain into a recharge basin near each lake to recharge the aquifer. Lake levels would be controlled automatically by the proposed circulation system, reducing labor required for manual control and minimizing variation in lake water levels. The proposed lake water circulation system would have the following characteristics:

- In-flow to each lake could be adjusted for replenishment of losses from evaporation and seepage in combination with the designed rate of water exchange for water quality treatment.
- Flushing action to remove lake algae biomass could be accomplished as needed by concentrating the entire main line flow to one lake for a short period.
- Each lake would overflow to its adjacent recharge basin, which would allow overflow water to filter through layers of soil (as it does currently) to recharge the aquifer.
- North Lake would be retrofitted with a connecting leach field under adjacent Park property to handle potential overflow of lake capacity during wet weather.
- Each lake could be isolated for treatment of its specific water quality ailments. Problems in one lake would not be transferred to other lakes, as could occur if the lakes were directly interconnected.[8]

Scheduling of the lakes rehabilitation project would take place over a two to ten year period (see Appendix B - Park Master Plan Schedule) with Rainbow Falls and Lloyd Lake scheduled in the near-term (early 1997), followed by South lake, Mallard lake, Middle lake in late 1997-1998 and Metson lake, Spreckels, Elk Glen in 1999-2000 and North lake and Stow lake after the year 2000. Factors affecting the scheduling of work include: wildlife habitat issues (avoiding breeding/nesting seasons where feasible); the volume of dredge materials; the ability to discharge circulation water; and the availability of reuse or disposal sites for dredged sediments.

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[7] STO Design Group, Inc., *Golden Gate Park Lake Rehabilitation Water Exchange Criteria,* prepared for ACE Pacific Company, August, 1995

[8] STO Design Group, Inc., *Golden Gate Park Lake Rehabilitation Water Exchange Criteria,* prepared for ACE Pacific Company, August, 1995

Rainbow Falls Reconstruction (C)

The reconstruction of Rainbow Falls will have project-level review and analysis in this EIR. Rainbow Falls, which is located on Prayer Book Hill off JFK Drive in the central part of the Park, was constructed in 1930 and falls fifty feet from a steep bank into a pond. The water then flows from the pond through a water course to Lloyd Lake. Rainbow Falls consists of both natural rock formations and a concrete structure formed to match the appearance of natural rock. The decorative mortar and artificial rock planter boxes have cracked and deteriorated over time, partially from the roots of large trees pushing through and from erosion. The structural integrity of the Falls has been affected by the undermining of the soil beneath the concrete and rock structure.

A technical report prepared as background to the Park Master Plan[9] recommended repairing and replacing unstable natural and artificial (concrete) rock at Rainbow Falls and restoring the pond edges, providing a wider area of the existing pathway for accessibility along JFK Drive and providing a barrier preventing public access along the cliffs at the north edge of the Falls. The historic design features of the Falls would be reproduced in the reconstruction design plans. If economically feasible, the existing second falls channel located east of the main falls would be reactivated. The western edge and eastern edge of the water feature would remain in a natural condition. The Park Master Plan proposes reconstruction of the Falls in 1997.

Rhododendron Dell Rehabilitation And Irrigation (C)

This action is analyzed in detail in this EIR and involves repairing and replacing existing landscape features, reforestation (tree trimming, pruning), pathway repairs, and installing a new irrigation system. The Rhododendron Dell is located along JFK Drive in the northeast area of the park. The project is scheduled for 1998.

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[9] ACE Pacific Company, Concept *Design Report for Lakes Rehabilitation*, prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994.

CIRCULATION ELEMENT - NEAR-TERM

Crossover Drive Undergrounding Feasibility Study, MLK Jr. Drive/Crossover Drive grade separation feasibility study, shuttle bus demonstration program, and the parking management plan are all at the study level and would not involve physical changes and are therefore exempt from environmental review. Carrying out feasibility studies would not be a physical change to the environment. If these studies led to a proposal for physical changes, subsequent environmental review would be required at the time. Several recommended actions in the Circulation Element of the Park Master Plan are either exempt from environmental review (Accessibility/ADA Path Improvements; Pedestrian Pathway Improvements; Circulation Signs; Directional Signs) or have previously undergone environmental review and are described in this EIR for potential cumulative impacts.

Actions that have had previous environmental review and have been approved for implementation include:

- Kezar parking lot landscaping (trees and perimeter planting), scheduled for 1997.
- Traffic signal at Kezar/Lincoln approved as part of the Kezar Corner Master Plan (87.523E Environmental Review, April 1988).

Recommended actions under the Circulation Element of the Park Master Plan that are analyzed in detail in this EIR are shown on Figure 6 and described below. All circulation projects are summarized on Table 2 on page 15.

Arguello Boulevard Road Closure (C)

A 50-foot long segment of Arguello Boulevard, just south of Kezar Drive, would be closed in order to reduce cut-through traffic in the Park. The closed portion of Arguello Boulevard would likely be landscaped, except for a pedestrian and bicycle path. No parking spaces would be eliminated with the closure. [10]

Conservatory Drive East Road Closure (C)

Conservatory Drive East, a one-way northbound to westbound roadway, would be closed to motor vehicle traffic to eliminate short-cutting through the Park via this route and to eliminate its use as a commuter parking area. The road would be converted to a bicycle and pedestrian route.

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[10] The closure of Waller Street and closure of a portion of Arguello Boulevard were included in the Kezar Master Plan Negative Declaration, 87.523 ER, April 6, 1988.

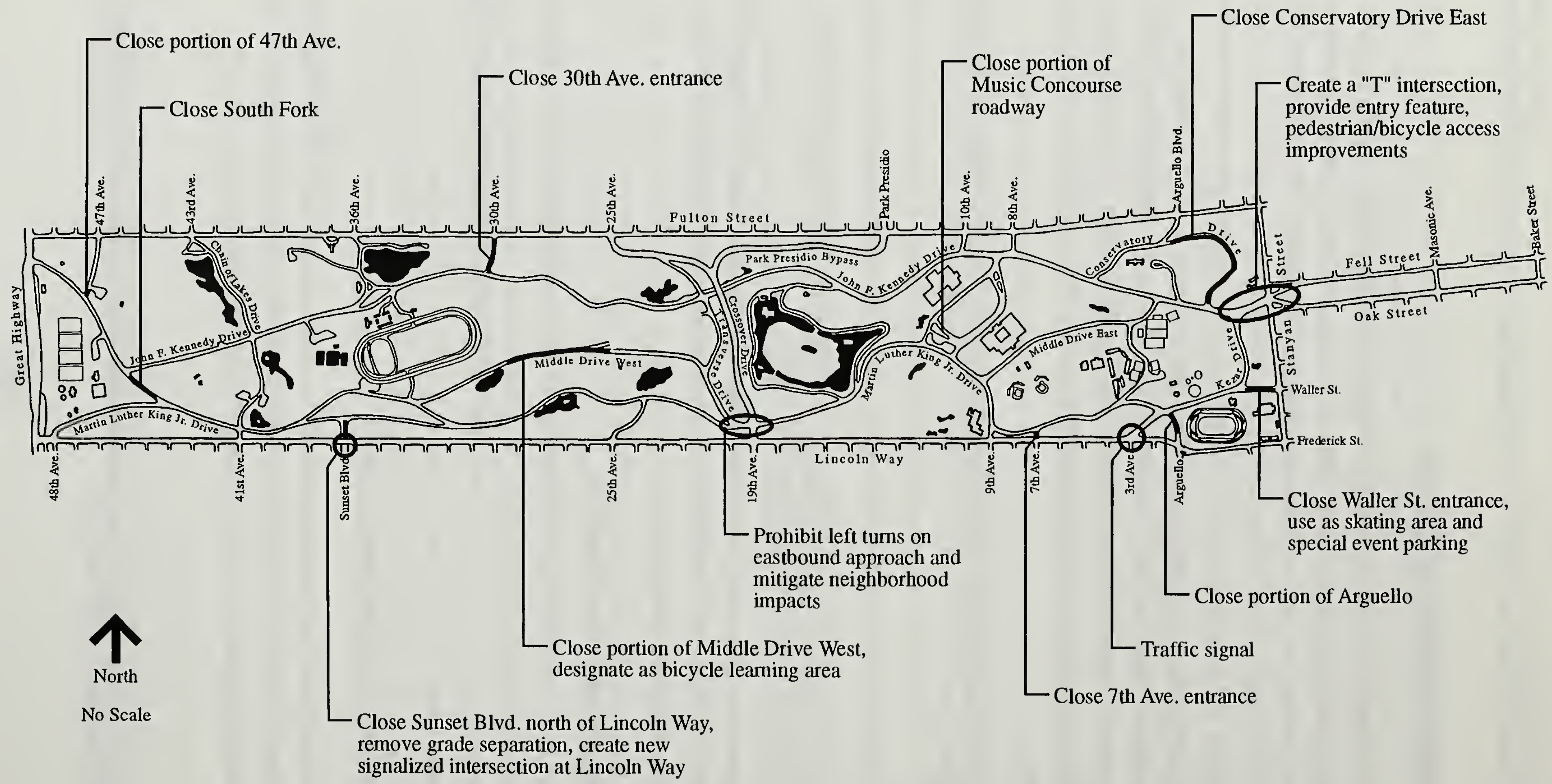
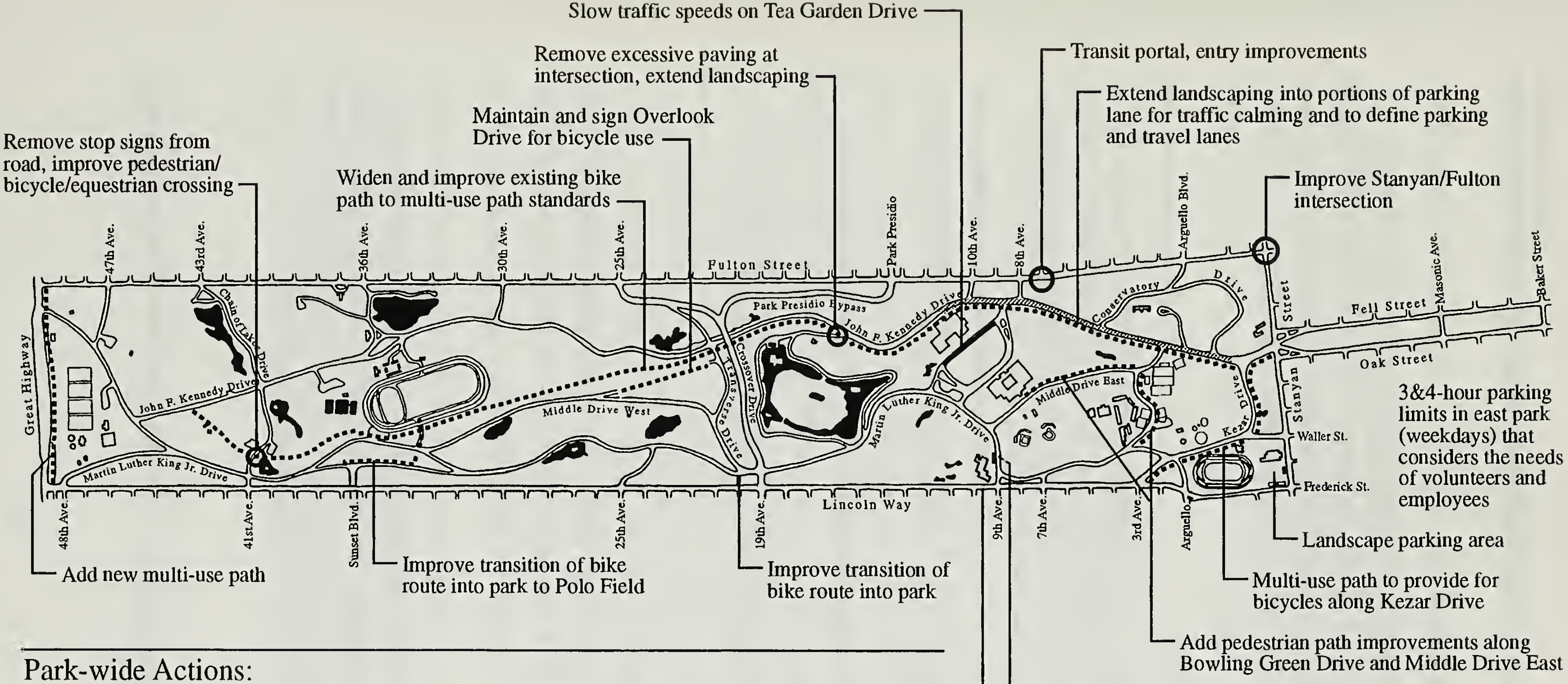

Close portion of 47th Ave.
Close South Fork
Close 30th Ave. entrance
Close portion of Music Concourse roadway
Close Conservatory Drive East
Create a "T" intersection, provide entry feature, pedestrian/bicycle access improvements
Close Waller St. entrance, use as skating area and special event parking
Close portion of Arguello
Traffic signal
Close 7th Ave. entrance
Prohibit left turns on eastbound approach and mitigate neighborhood impacts
Close portion of Middle Drive West, designate as bicycle learning area
Close Sunset Blvd. north of Lincoln Way, remove grade separation, create new signalized intersection at Lincoln Way
Great Highway
47th Ave.
43rd Ave.
36th Ave.
30th Ave.
25th Ave.
Fulton Street
Park Presidio
10th Ave.
8th Ave.
Arguello Blvd.
Masonic Ave.
Baker Street
Fell Street
Oak Street
Stanyan Street
Waller St.
Frederick St.
Chain of Lakes Drive
John F. Kennedy Drive
Martin Luther King Jr. Drive
Middle Drive West
Middle Drive East
Park Presidio Bypass
Crossover Drive
Transverse Drive
Conservatory Drive
Kezar Drive
Lincoln Way
48th Ave.
41st Ave.
Sunset Blvd
25th Ave.
19th Ave.
9th Ave.
7th Ave.
3rd Ave
Arguello
North
No Scale

Figure 5

Circulation Action Plan Major Roadway Modifications

Source: Royston Hanamoto Alley & Abey


Slow traffic speeds on Tea Garden Drive
Remove excessive paving at intersection, extend landscaping
Transit portal, entry improvements
Extend landscaping into portions of parking lane for traffic calming and to define parking and travel lanes
Maintain and sign Overlook Drive for bicycle use
Remove stop signs from road, improve pedestrian/ bicycle/equestrian crossing
Widen and improve existing bike path to multi-use path standards
Improve Stanyan/Fulton intersection
3&4-hour parking limits in east park (weekdays) that considers the needs of volunteers and employees
Landscape parking area
Multi-use path to provide for bicycles along Kezar Drive
Add pedestrian path improvements along Bowling Green Drive and Middle Drive East
Add passenger drop-off area and short duration parking (green curb)
Explore operations improvements on Lincoln Way with DPT
Add new multi-use path
Improve transition of bike route into park to Polo Field
Improve transition of bike route into park
Great Highway
47th Ave.
43rd Ave.
36th Ave.
30th Ave.
25th Ave.
Park Presidio
10th Ave.
8th Ave.
Arguello Blvd.
Masonic Ave.
Baker Street
Fulton Street
Fell Street
Oak Street
Stanyan Street
Waller St.
Frederick St.
Lincoln Way
48th Ave.
41st Ave.
Sunset Blvd.
25th Ave.
19th Ave.
9th Ave.
7th Ave.
3rd Ave.
Arguello
Chain of Lakes Drive
John F. Kennedy Drive
Martin Luther King Jr. Drive
Middle Drive West
Transverse Drive
Crossover Drive
Park Presidio Bypass
Middle Drive East
Conservatory Drive
Kezar Drive
North
No Scale

Park-wide Actions:

- Bicycle parking at major attractions
- Monitored bicycle parking at Music Concourse
- Monitored bicycle parking for major events
- Accessable pathway loops for mobility impaired
- Explore transit improvements with MUNI
- Wayfinding/directional sign survey and plan
- Actively pursue demonstration shuttle program
- Support neighborhood permit parking
- Continue the current Sunday/holiday closing of Kennedy and Conservatory drives
- Continue the current Saturday closing of Middle Drive West
- Provide temporary directional signs to Concourse institutions when roads are closed to motor vehicles
- Encourage parking and traffic regulation enforcement
- Continue process to identify a sustainable off-road bike trail system
- Improve trail-use sign system
- Encourage DPT to improve routes to Golden Gate Bridge and Richmond District that do not go through park
- Test the use of permanent control devices for weekend street closures
- Explore pay parking on Kezar Drive
- Review the use of stop signs in park
- Develop program to discourage single-occupant auto use by park employees, volunteers, and concessionaire employees
- Develop a parking management plan for Concourse institutions and park employees that considers the needs of volunteers and employees and discourages single-occupant auto use

Source: Royston Hanamoto Alley & Abey

Figure 6

Circulation Action Plan
Other Actions

Middle Drive West (Partial) Road Closure (C)

About one-eighth of Middle Drive West (a 500-foot portion) would be closed. This segment is located just west of the entry to the Urban Forestry yard, roughly in the middle of the roadway length. The closed portion would be designated as a bicycle learning area. Vehicle access to all Park features along Middle Drive would be provided by allowing parking on the section of the Drive that remains open.

Music Concourse Road Closure (C)

The Park Master Plan proposes the closure of the one-way roadway behind the Bandstand in order to create a landscaped plaza with café seating and service carts. Currently, the roadway is used by some motorists leaving the parking aisle north of the Academy of Sciences who wish to exit onto Martin Luther King (MLK) Jr. Drive via Tea Garden Drive (direct access to MLK Jr. Drive is not permitted via one-way Academy Drive). The roadway is often congested on weekends with motorists circulating through the area in search of a parking space and with pedestrians boarding and unloading from nearby tour buses.

The Park Master Plan proposes to modify vehicle circulation from the parking aisle north of the Academy of Sciences so that vehicles leaving the aisle must exist onto Academy Drive, via either the existing exit point or a widened driveway connecting with the bus parking area to the south of the Bandstand. Under the plan, about 100 feet of the existing one-way bus only lane would be converted to two-way operations.

South Fork Drive Road Closure (C)

South Fork is a short roadway of approximately 500 feet that connects JFK Drive with MLK Jr. Drive in the western area of the Park. A portion of roadway (approximately 20,000 square feet) would be reclaimed as parkland and serve as a bicycle /pedestrian pathway.

Waller Street (C)

Waller Street, between Kezar Drive and Stanyan Street, would be closed in order to reduce cut-through traffic in the Park. This roadway segment, which is also used for commuter parking offering about 42 on-street spaces, would be converted to a skating or special event parking area. In addition, a separate bicycle path would be constructed parallel to Waller Street. [11].

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[11] The closure of Waller Street and closure of a portion of Arguello Boulevard were included in the Kezar Master Plan Negative Declaration, 87.523 ER, April 6, 1988.

7th Avenue Road Closure (C)

Seventh Avenue's right-turn only entrance and exit at Lincoln Way would be closed to motor vehicles. The access point would be upgraded with landscaping, and would allow disabled, pedestrian and bicycle access. About ten parking spaces would be eliminated in the vicinity, and another three parking spaces would be removed on the east side of 9th Avenue between Lincoln Way and King Drive, to accommodate increased traffic entering on 9th Avenue.

30th Avenue Entry Road Closure (C)

Thirtieth Avenue's entrance at Fulton Avenue would be closed. A portion of the asphalt paving would be converted to a bicycle pathway. The remaining asphalt would be removed, and the area would be landscaped and restored to parkland. [12]

47th Avenue Closure (C)

A twenty foot portion of 47th Avenue, between the golf course entrance and JFK Drive would be closed. This segment(approximately 600 square feet) would be returned to parkland, with provision for a paved bicycle and pedestrian pathway. Direct auto access to the archery field and golf course would be available only via Fulton Street.

Test Use Of Permanent Control Devices For Weekend Street Closures (C)

The Park proposes to test a variety of physical barricades to prevent vehicles from entering the Park on existing streets during weekend hours when some streets are closed to vehicles. Physical barriers could include devices such as swing gates, removable posts, fencing and other apparatus used for this purpose. All physical barriers would have provisions for bicycle and pedestrian access.

JFK/Stanyan/Kezar Entry Improvements (C)

Over 12,000 square feet of asphalt would be removed to create a landscaped Park entry (see Figure 7). Currently, two lanes of traffic enter the Park from Fell Street and then merge to one lane near Conservatory Drive East. The proposed plan would move the lane reduction east of Stanyan Street and create a westbound bicycle lane in its place. Westbound vehicles entering the Park would thus be forced to slow down before tuming the corner. In addition, an eastbound bicycle path would be

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[12] Closure of a portion of 30th Avenue was approved in the 1985 Transportation Management Plan, Negative Declaration 85.80E, June 7, 1985.

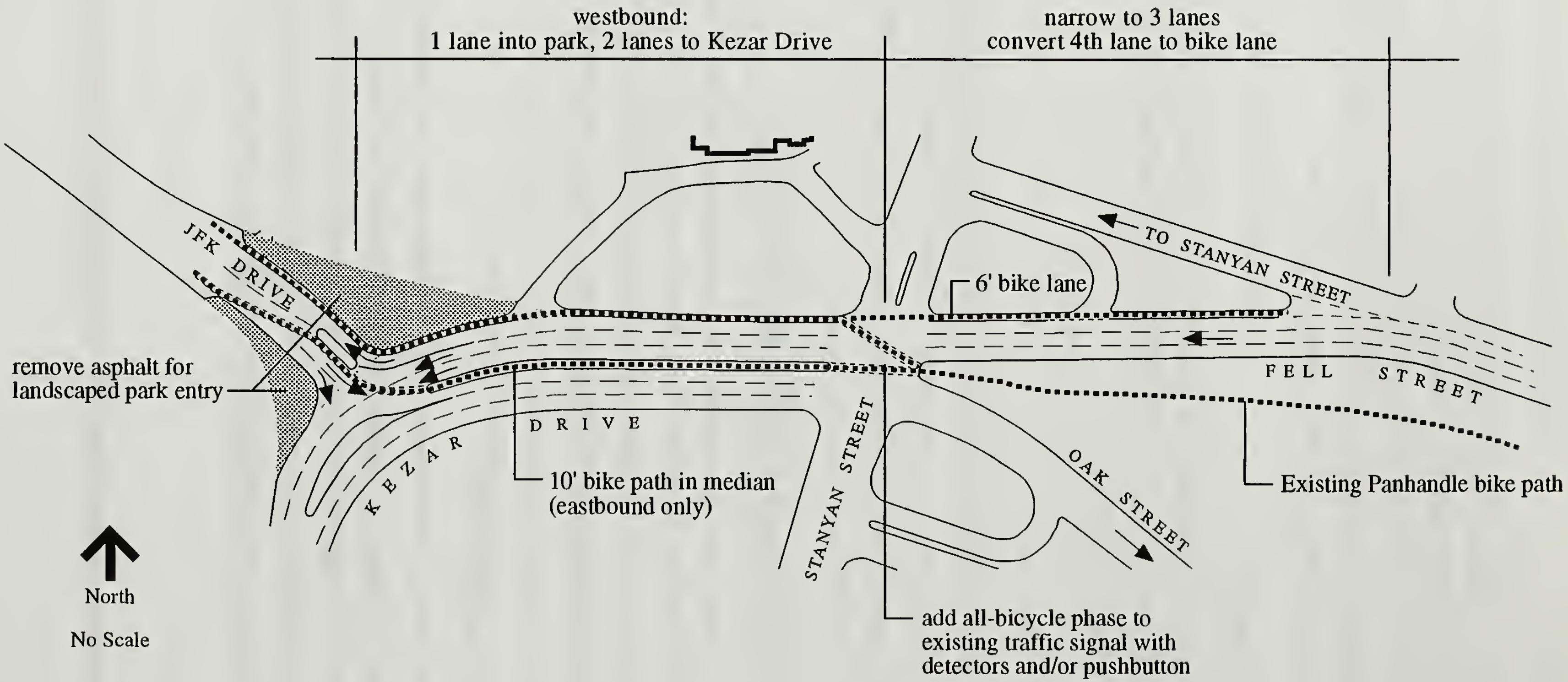
westbound:
1 lane into park, 2 lanes to Kezar Drive
narrow to 3 lanes
convert 4th lane to bike lane
TO STANYAN STREET
6' bike lane
FELL STREET
Existing Panhandle bike path
JFK DRIVE
remove asphalt for landscaped park entry
KEZAR DRIVE
10' bike path in median (eastbound only)
STANYAN STREET
OAK STREET
add all-bicycle phase to existing traffic signal with detectors and/or pushbutton
North
No Scale

Figure 7

Kezar Drive/JFK Drive Entry
Proposed Traffic Changes

Source: Royston Hanamoto Alley & Abey

created in JFK Drive's center median between the modified intersection and Stanyan Street. Bicycle traffic signal actuation would be installed at the Stanyan Street/Fell Street intersection.[13]

In association with the proposed intersection traffic calming improvement, a westbound bicycle lane would replace the existing outside auto travel lane on Fell Street and Kezar Drive between the Stanyan Street exit and JFK Drive and the existing center median Kezar Drive between JFK Drive and Stanyan Street would be converted into an eastbound one-way bicycle path. In addition, bicycle lanes would be striped through the intersection to connect with the existing Panhandle bike path. An eastbound lane would connect the proposed center median bike path with the Panhandle path and a westbound diagonal lane would connect the Panhandle path with the proposed westbound bike lane along Kezar Drive's curb. Both movements would be made during an "all-bicycle" traffic signal phase at the intersection.

It should be noted that the City's Department of Parking and Traffic (DPT) is proposing to modify the lane striping and signal phasing at this intersection to accommodate southbound Stanyan Street to eastbound Oak Street left-turns. The northern leg of the intersection would be reconfigured to provide one left-turn lane, one through only lane, and one shared through/right-turn lane. A "No Right Turn on Red" sign prohibiting turns onto westbound Kezar Drive during red lights would be installed as part of the improvement.

JFK Drive Landscape Extensions/Traffic Calming (C)

Under the Park Master Plan, landscape extensions would be created in the parking lanes along JFK Drive, between Kezar Drive and the Rose Garden, to induce speed reduction and better define the parking areas. The existing width of JFK Drive leads to high speeds and use of the parking lane for passing cars. The 8-foot wide extensions (shown on Figure 8) would delineate the parking lanes as well as the existing single 16-foot travel lanes. The extensions are proposed at corners, crosswalks, and other locations.

Tea Garden Drive Traffic Calming (C)

This Park Master Plan action is intended to slow down traffic speeds on Tea Garden Drive by making pedestrian circulation improvements, providing additional landscaping, and allowing parking on one side of the street. Two alternatives are proposed; each one narrows the roadway to two 12 foot travel lanes. (see Figure 9). Alternative A narrows both lanes to 12-feet by extending

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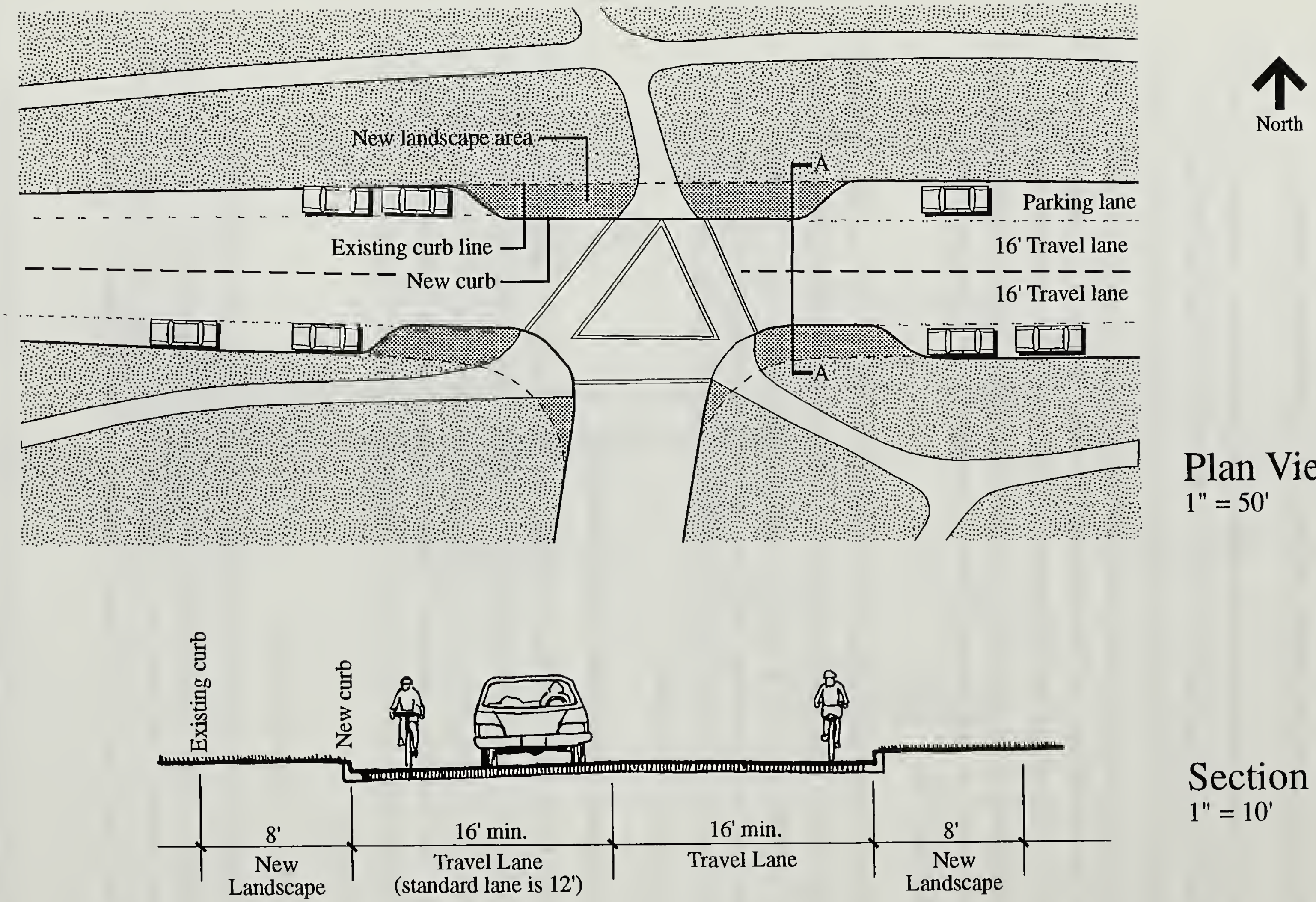
[13] The redesign of the intersection to remove excess asphalt was approved in the 1985 Transportation Management Plan; Negative Declaration 85.80E, June 7, 1985.

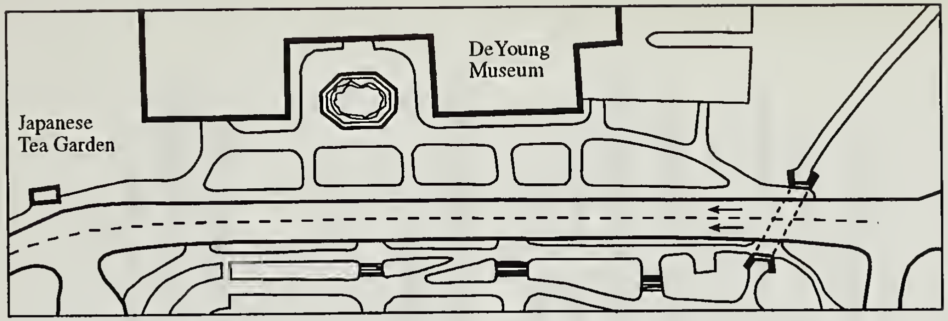


Plan View
1" = 50'

Section A-A
1" = 10'

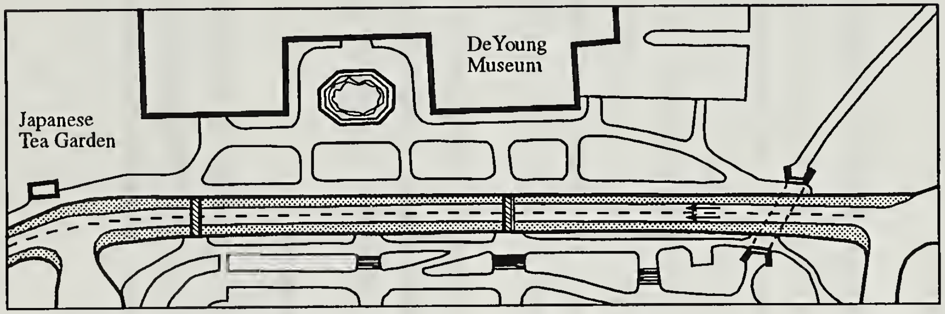
Source: Royston Hanamoto Alley & Abey

Figure 8
Typical Landscape Extension



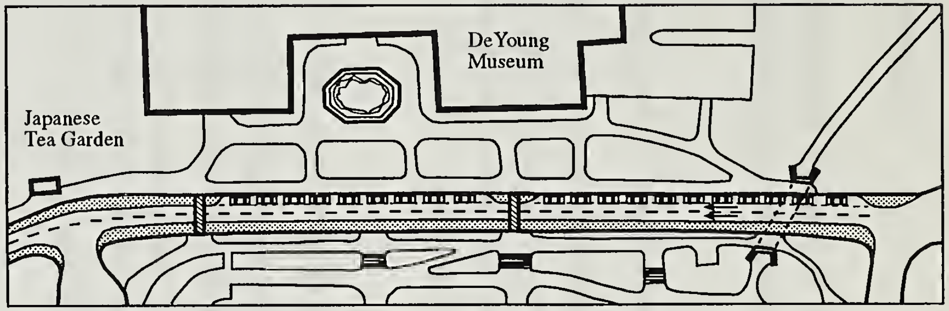
Existing Condition

- Two 20'-25' travel lanes



Proposed Improvements - Alternative A

- Two 12' travel lanes
- Pedestrian improvements
- Landscape improvements



Proposed Improvements - Alternative B

- Two 12' travel lanes
- Pedestrian improvements
- Landscape improvements
- Parking lane on museum side

↗
North
No Scale

Source: Royston Hanamoto Alley & Abey

Figure 9
Tea Garden Drive

landscaping from both sides of the roadway. Alternative B provides landscaping on the south side and some extensions on the north side to provide 12-foot lanes with a parking lane next to the museum.

Intersection Paving Reductions/Traffic Calming (C)

The Park Master Plan proposes minor redesign and landscape treatments at existing intersections, where appropriate, within the Park over the next ten years. The intent of these improvements will be to reduce the extent of paving where feasible without restricting traffic movements. Paved areas would be returned to parkland. The intersections would be designed to enable multi-modal access.

Stanyan/Fulton Intersection Improvements (C)

Traffic signal timing and pavement striping changes are proposed to enhance traffic flow, including pedestrian and bicycle circulation, through this often congested intersection. Removing about eight parking spaces on the east side of Stanyan Street (south of Fulton Street) would enable restriping the northbound approach for two left-turn lanes. These improvements may also accommodate through trips diverted from internal Park roadways proposed to be closed. (see Figure 10).

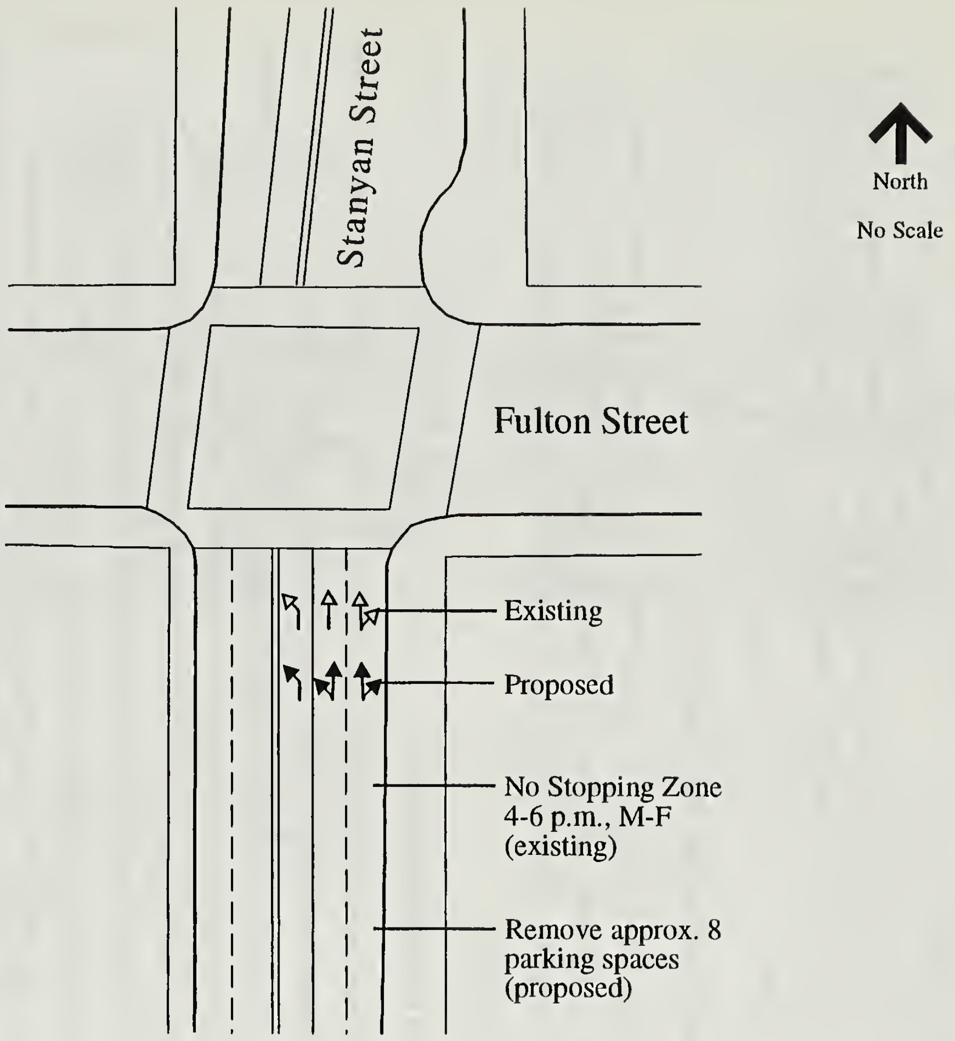
Parking Limits In East Park (C)

Commuters currently park on the roadways in the eastern area of the Park and walk or take transit to nearby employment centers or to UCSF. The existing Park regulation of ‘no parking’ before 9:00 a.m. on MLK Drive has not been effective in preventing commuter parking. However, the existing 3-hour parking limit by the tennis courts and in the Children’s Playground lot has proven effective in preserving available parking for recreational use in those areas. Therefore, 3 and 4-hour parking limits are proposed in the eastern area of the Park with 4-hour limits near the museums and 3-hour limits on Conservatory Drive, Bowling Green Drive, Kezar Drive, MLK Drive from 9th Avenue to Kezar Drive, and JFK Drive from Bowling Green Drive to Kezar Drive.

These restrictions would limit commuter parking and improve access and parking availability for Park users. In implementing these regulations, consideration could be made for volunteers and employees of park institutions, if deemed appropriate (page 5-3 of Master Plan).

Multi-Use Path Improvements (C)

The Park Master Plan calls for improving multi-use pathways to accommodate alternative, and sometimes competing, uses. All paths designated as multiple-use bike paths are to be upgraded with an eight foot asphalt surface, and a two foot wide decomposed granite (or quarry fines)



Source: Royston Hanamoto Alley & Abey

Figure 10

Stanyan/Fulton Intersection

pedestrian surface on both sides of the asphalt. The park's primary east-west path, running from the panhandle to the Great Highway would be upgraded, including widening and resurfacing most of the path; improving clearances, and adding striping and signs to warn motorists and bicyclists. In addition; several bike paths are proposed to be lengthened and/or connected to other pathways. See Figure 11.

In addition, continuous pedestrian paths would be provided where they are presently absent: along Bowling Green Drive, Conservatory Drive East, Middle Drive East, and an access pathway to McLaren Lodge.

Visitor Drop-Off, County Fair Building (C)

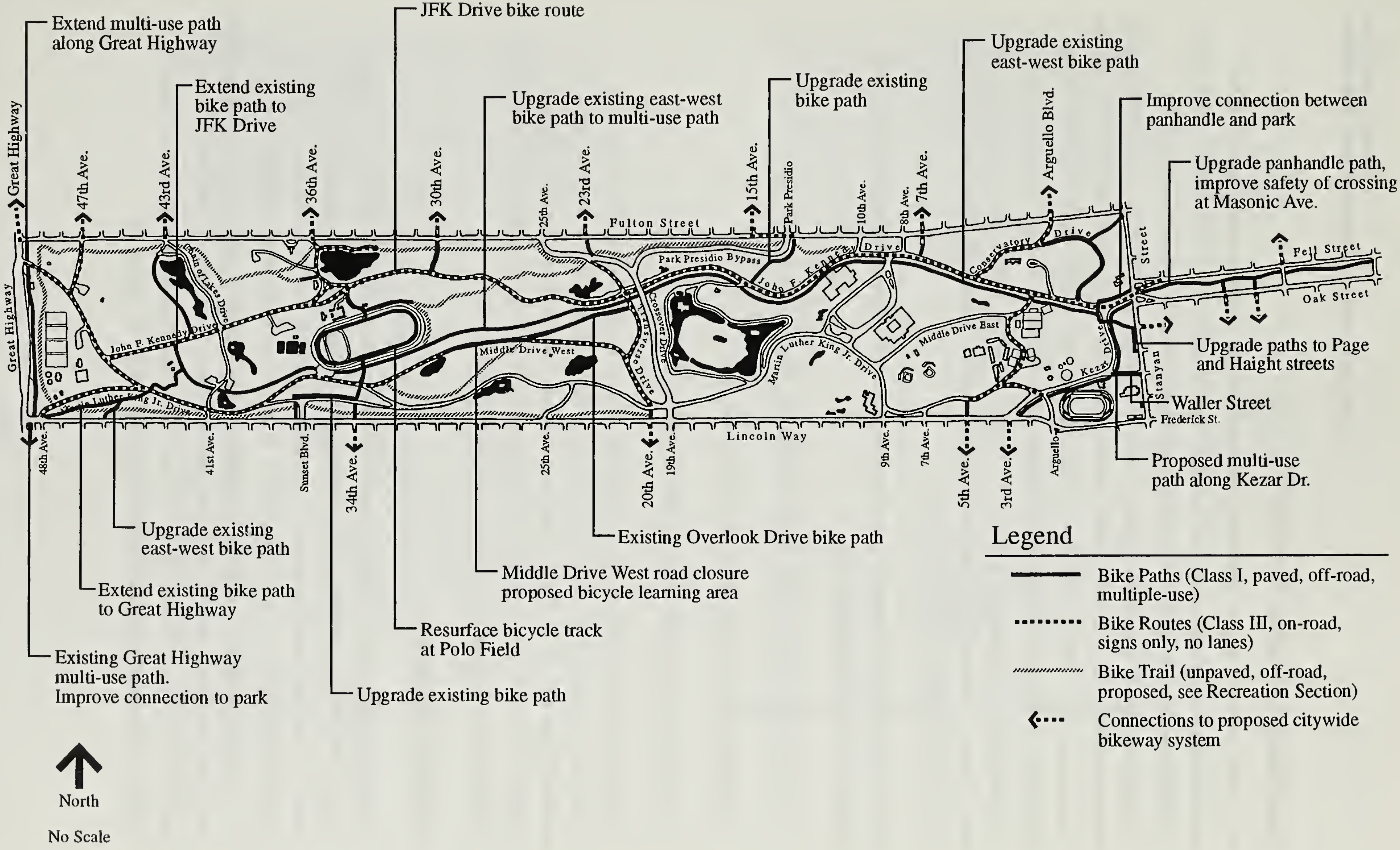
A vehicle pull-out and visitor drop-off would be developed in front of the County Fair Building where parking is presently prohibited. An 80-foot long curb-cut and a striped lane for a bus and auto drop-off would be installed so bus and car loadings/unloadings could take place out of the way of through traffic.

Powell Street Railway Station (C)

The existing structure located at 7th Avenue and Fulton Street was designed and used as a transit stop for the former Powell Street railway and once served as a major entrance to the Park. The location is not currently used as a Muni stop (the closest stop is at 8th and Fulton). Rehabilitation of the existing transit shelter at 7th and Fulton is identified in the Park Master Plan for consideration by the Recreation and Park Commission at some future date (unspecified). The existing structure would need minor repairs and rehabilitation (paint, stucco repair, roof repair, seating replaced, lighting) to serve as a transit portal and pedestrian entrance for the park. A visual corridor and pedestrian access would be opened into the Park by trimming existing vegetation and expanding the existing pathway into the Park. The structure may also serve as a location for a revenue generating concession compatible with the entry, such as bicycle and skate rental. Signage and transit information would need to be added to the transit shelter if it were to be used as a transit portal for Park visitors.

Martin Luther King Jr. Drive turn Prohibition (D)

Currently, much of the motor traffic that travels eastbound via MLK Jr. Drive (west of Crossover Drive) is destined for northbound Crossover Drive. The proposed project would prohibit left-turns from eastbound MLK Jr. Drive onto northbound Crossover Drive through intersection rechannelization, signal timing, and signing.


Extend multi-use path along Great Highway
Extend existing bike path to JFK Drive
JFK Drive bike route
Upgrade existing east-west bike path to multi-use path
Upgrade existing bike path
Upgrade existing east-west bike path
Improve connection between panhandle and park
Upgrade panhandle path, improve safety of crossing at Masonic Ave.
Upgrade paths to Page and Haight streets
Waller Street
Frederick St.
Proposed multi-use path along Kezar Dr.
Existing Overlook Drive bike path
Middle Drive West road closure proposed bicycle learning area
Resurface bicycle track at Polo Field
Upgrade existing bike path
Upgrade existing east-west bike path
Extend existing bike path to Great Highway
Existing Great Highway multi-use path. Improve connection to park
Great Highway
47th Ave.
43rd Ave.
36th Ave.
30th Ave.
25th Ave.
23rd Ave.
Fulton Street
15th Ave.
Park Presidio
10th Ave.
8th Ave.
7th Ave.
Arguello Blvd.
Drive
Street
Fell Street
Oak Street
Stanyan
Park Presidio Bypass
John F. Kennedy Drive
Conservatory Drive
Chain of Lakes Drive
Middle Drive West
Crossover Drive
Transverse Drive
Martin Luther King Jr. Drive
Middle Drive East
Kezar Drive
Lincoln Way
48th Ave.
41st Ave.
Sunset Blvd.
34th Ave.
20th Ave.
19th Ave.
9th Ave.
5th Ave.
3rd Ave.
Arguello
Legend
Bike Paths (Class I, paved, off-road, multiple-use)
Bike Routes (Class III, on-road, signs only, no lanes)
Bike Trail (unpaved, off-road, proposed, see Recreation Section)
Connections to proposed citywide bikeway system
North
No Scale

Source: Royston Hanamoto Alley & Abey

Figure 11

Bicycle Circulation Plan

Sunset Boulevard Roadway Closure (D)

The existing grade separation at Lincoln Avenue and Sunset Boulevard was originally built to accommodate a future continuation of Sunset Boulevard northerly through the park. Plans for the roadway extension were shelved by the Park Superintendent John McLaren in the 1930's. Currently, the Sunset Boulevard entrance is used by many commuters to cut-through the Park via eastbound MLK Jr. Drive to northbound Crossover Drive, and vice-versa (commuters also use the entrance to access Chain of Lakes Drive, another popular cut-through route). The Park Master Plan proposes to close Sunset Boulevard's entrance to the Park as shown in Figure 12. Sunset Boulevard would be redesigned and raised to remove the grade separation and intersect Lincoln Way at-grade. This new intersection would be signalized. The existing slip ramps to 36th Avenue and from 37th Avenue would be removed.

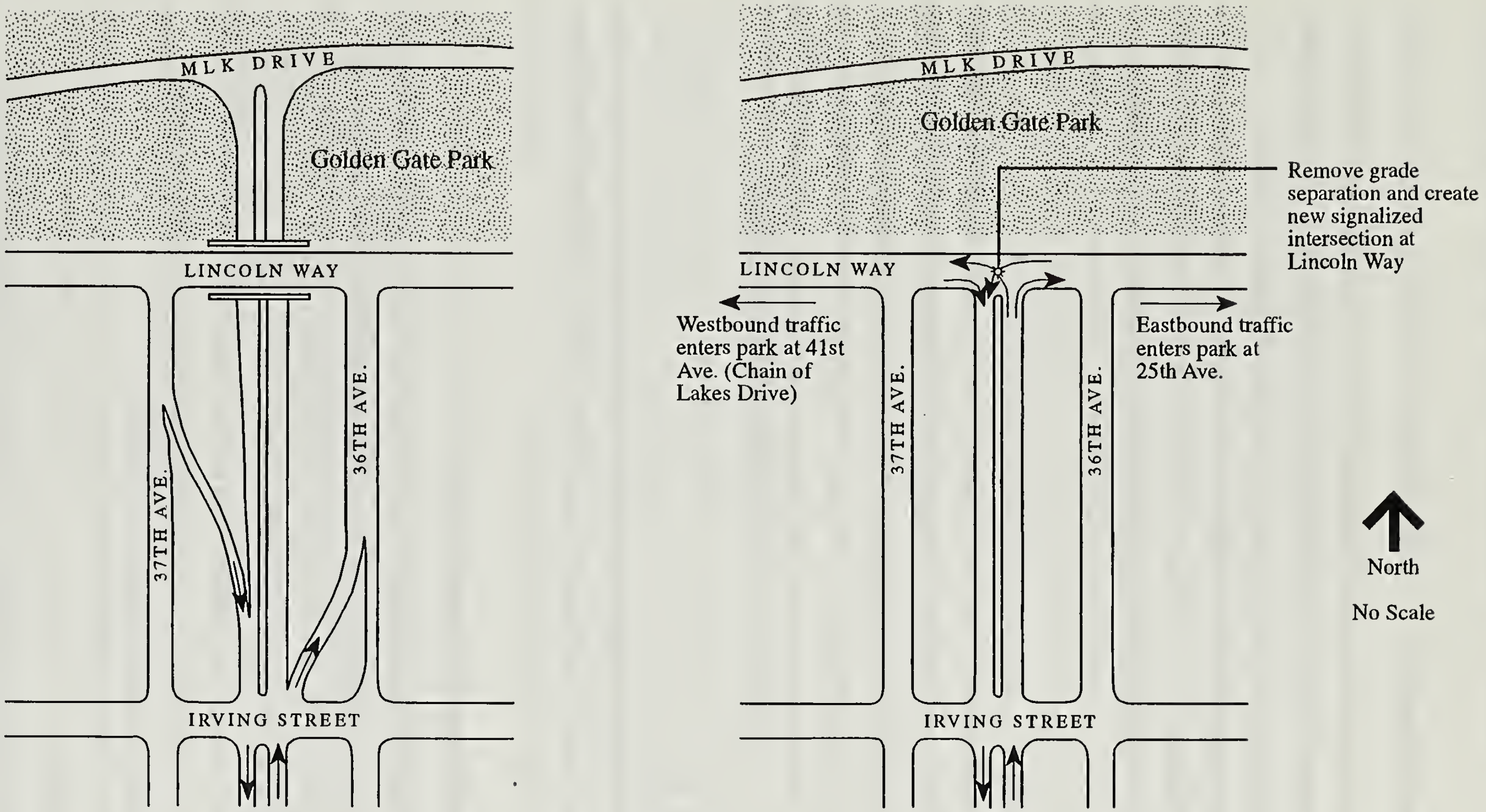
For analysis purposes, the following lane configuration was assumed at the proposed Sunset Boulevard/Lincoln Way intersection:

- Northbound: two left-turn lanes and one right-turn lane
- Eastbound: two through lanes and one right-turn lane
- Westbound: two left-turn lanes and two through lanes

In addition, it was assumed the 36th Avenue/Lincoln Way intersection would be limited to northbound right-turns only and the 37th Avenue/Lincoln Way intersection would be limited to eastbound right-turns only. These measures were assumed due to intersection spacing requirements along Lincoln Way and a desire to minimize cut-through traffic along 36th Avenue and 37th Avenue between Irving Street and Lincoln Way.

RECREATION ELEMENT

The trails brochures including development of educational material would not result in physical change to the Park environment, and is not subject to CEQA review. Special events, such as concerts in the Park, would have temporary effects to parkland that are controlled by existing permit conditions (noise, traffic/parking, litter). Special events will not be discussed further in this EIR. Play area renovation, handball court repair, athletic field work, and archery field replacement would not substantially change existing physical conditions or uses in the park and are typically exempt from environmental review, but they are assessed in the EIR as part of the cumulative impacts. The recreation projects are summarized on Table 3 on page 19.



Remove grade separation and create new signalized intersection at Lincoln Way

Westbound traffic enters park at 41st Ave. (Chain of Lakes Drive)

Eastbound traffic enters park at 25th Ave.

Existing Sunset Boulevard

Proposed Sunset/Lincoln Intersection

Figure 12

Sunset Boulevard

Source: Royston Hanamoto Alley & Abey

Children's Play Area Renovations (B)

There are five children's play areas in the Park located at 46th Avenue/Lincoln Way, Mother's Meadow (MLK Drive/Crossover Drive), 9th Avenue/Fulton Street, the Mary B. Connolly Children's Playground, and at the Panhandle at Ashbury Street. All of these play areas would be rehabilitated within the coming years with the exception of the Panhandle playground which has already been renovated through a gift. The play area at 9th Avenue/Fulton Street, which is next to a busy street, but hidden from view by surrounding vegetation, is scheduled for rehabilitation in 1996. This play area would be opened to better view by trimming vegetation and overhanging tree branches.

Other play areas would be renovated to meet the requirements of the Americans with Disabilities Act of 1990, and the requirements under the Consumer Products Safety Commission Guidelines. Each of the play areas will need to be reviewed and renovated to integrate accessible and non-accessible elements and comply with specific safety guidelines (such as distances between equipment, separation of age group equipment, fall distance and surfacing, head entrapment, and elimination of protrusions). Improvements would be initiated as funding is available.

Handball Court Repairs (B)

The handball courts located near the Big Rec baseball diamonds off Middle Drive East would be repaired by patching the court walls and repainting the surfaces. The existing roof would also be repaired and disabled access to the area would be provided.

Athletic Field Irrigation/Drainage Improvements (B)

There are large athletic fields at Kezar Stadium, Big Rec, the Polo Field, and the Beach Chalet soccer fields. There are other facilities such as the softball diamonds at Sharon Meadow and Speedway Meadow, the golf course, the archery field, and the bowling greens. Due to overuse and poor drainage systems under several of the athletic fields, the turf is damaged. Under the Park Master Plan, existing underground pipelines and sprinkler systems used to irrigate the fields would be upgraded (where needed) with new pipes and sprinkler heads. Installation of new drainage systems would also be implemented where needed.

Archery Field Repairs (B)

The archery field is located near the golf course in the western end of the Park along 47th Avenue. The Park Master Plan identifies the existing archery targets as needing repairs and recommends replacing the existing archery stands.

Trail and Path Improvements/Rehabilitation (C)

Under the proposed Park Master Plan, many paved and unpaved trails and paths throughout the Park would be repaved, widened, or supported with additional base material. Various trails within the Park are used for walking, running, bicycling and horseback riding. Some trails are used for multiple purposes and require widening or striping. Some of the paved trails also support maintenance vehicles and need to be upgraded in width or with a crushed rock base to support these vehicles. Improvements to trails and pathways are addressed in detail in this EIR.

There are also numerous "volunteer" or "social" unpaved trails throughout the Park which were never planned. Many of these trails are eroding due to trampling and removal of the vegetation which helps to stabilize the predominantly sandy soils. Under the Park Master Plan, these unplanned trails would be eliminated and revegetated. Erosion control measures accompanied by temporary fencing, barriers, and signs explaining erosion problems would be installed to discourage further use of these trails.

Golf Course Irrigation System Renovation (C)

The Golden Gate Park Golf Course is located in the western end of the park, accessible from Fulton Street and 47th Avenue. This nine-hole golf course occupies about 22 acres. The greens and fairways are watered by deteriorated irrigation systems, connected to the North Mill wells, reservoir and pump station by a 100 year old cast iron pipeline and corroded galvanized steel distribution lines.

The Park Master Plan proposes to replace the deteriorated irrigation system with an updated system of new ductile iron pipes and sprinklers connected to replacement wells at the west end of the Park and at a centrally located new reservoir (discussed below). This action is a part of the Park infrastructure project, parts of which have been exempted from environmental review. The replacement irrigation system would be designed in accordance with City Ordinance 391-91 to accommodate recycled water.

Horseshoe Courts Renovation/Relocation (C)

The existing horseshoe courts are located in the north-eastern corner of the Park off Conservatory Drive. According to the Draft Park Master Plan, the courts are not easily accessible and are often vandalized due to their secluded location. The Park Master Plan proposes to relocate the courts to a site near the dog training area, petanque court and Senior Center off of Fulton Street in the western part of the park.

Mountain Bike Trail Designation/Education (C)

Under the Park Master Plan, the feasibility of permitting mountain bikes on Park trails would be assessed. The Draft Master Plan indicates that uncontrolled off-pathway mountain bike use has caused damage in many areas of the park, including erosion, soil compaction, and plant damage. The designation of specific trails for mountain bike use is under consideration in the Park Master Plan. The trails would principally be west of Crossover Drive, and would be identified by signs and educational materials. Trails would be monitored by Park maintenance staff to minimize erosion potential.

Education of all trail users is considered an important element of the trails program, with the objective being to encourage trail etiquette, awareness of erosion problems and respect for the fragile soils of the park.

VISITOR FACILITIES ELEMENT - NEAR-TERM

Two proposed actions would not result in a physical change to the Park environment: park visitor brochures and maps and policies regarding Park concessions. These Park MP actions will not be discussed further in this EIR. Four Visitor Facility projects have either received environmental review (Beach Chalet Visitor Center), been approved (restroom repair) or would typically be exempt from CEQA review (comprehensive entry signs and Park feature signs). These four projects are described in the EIR for informational purposes, but are not discussed further, except as appropriate under cumulative effects. The Visitor Facilities Element projects are summarized in Table 4 on page 20.

Beach Chalet Visitor Center (B)

The Beach Chalet is located along The Great Highway on the western edge of the Park. Renovation of this Historic Landmark building and development of a cafe restaurant (Brew Pub) on the second floor has been determined categorically exempt from environmental review and was approved by the Recreation and Park Commission for construction in early 1996.[14] These facilities opened in early 1997. This Spanish-colonial building, constructed in 1925, contains WPA-era murals on the ground floor dating back to 1936. The Park Master Plan describes use of the ground floor of the Beach Chalet as the western Park visitor center with the addition of a staffed information desk, a small exhibit area, and park-related merchandise for sale to the public. The building is 12,225 sq. ft. and has a capacity of 430 persons. A paved parking area for 65 vehicles is adjacent to the Beach Chalet. Parking and traffic effects of the projected visitor use are addressed in this EIR.

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[14] Beach Chalet Restoration, Categorical Exemption, June 18, 1993.

Ongoing Restroom Restoration (B)

Public restrooms throughout the Park are in need of repair, renovation or reconstruction to meet Americans with Disability Act accessibility standards and to meet security and sanitary objectives. Ten restrooms have been permitted for renovation by 1996 under the Golden Gate Park Infrastructure Bond. Other Park restroom rehabilitation plans are in design and proposed for implementation in upcoming years.

Park Information (Feature and Entry) Signs (B)

Historically, signs have been kept to a minimum in the park. As the amount of facilities, regulations, and traffic has increased, signs have been added on a case by case basis, rather than by any plan. The existing signs generally fall into the following categories: Park regulations, traffic and parking, Park features, and pedestal maps. Additional informational signs are proposed as part of the Park Master Plan.

Music Concourse Information Kiosk (C)

The Park Master Plan proposes a visitor information kiosk in the Music Concourse, which has a large concentration of visitors. A small information kiosk (less than 75 square feet) would provide Park information, a meeting place for tours, sales of appropriate Park items, and opportunities for Park fund-raising. A kiosk would also provide informational space for the Park conservancy organization. The kiosk could be staffed, but could also be designed to provide information when not staffed (possibly including an interactive computer). The most likely strategic location for an information kiosk would be in the paved area between the Tea Garden and the Asian Art Museum (see Figure 13).

Under the Park Master Plan, a comprehensive sign master plan would be developed to establish a coordinated, well designed system with standards for sign design, placement and uses. A new system of entry signs is proposed to provide comprehensive information at all Park entries. Automobile entry signs would be provided, a system of trail and pathway signs would be installed, and concrete pedestal maps would continue to be used.

Tea Garden New Restroom (C)

The addition of a new 400 sq. ft. restroom, with disabled access, is proposed in the Tea Garden to augment the existing restroom. The new restroom would be located in the northwest side of the garden and would include one stall each for men and women.

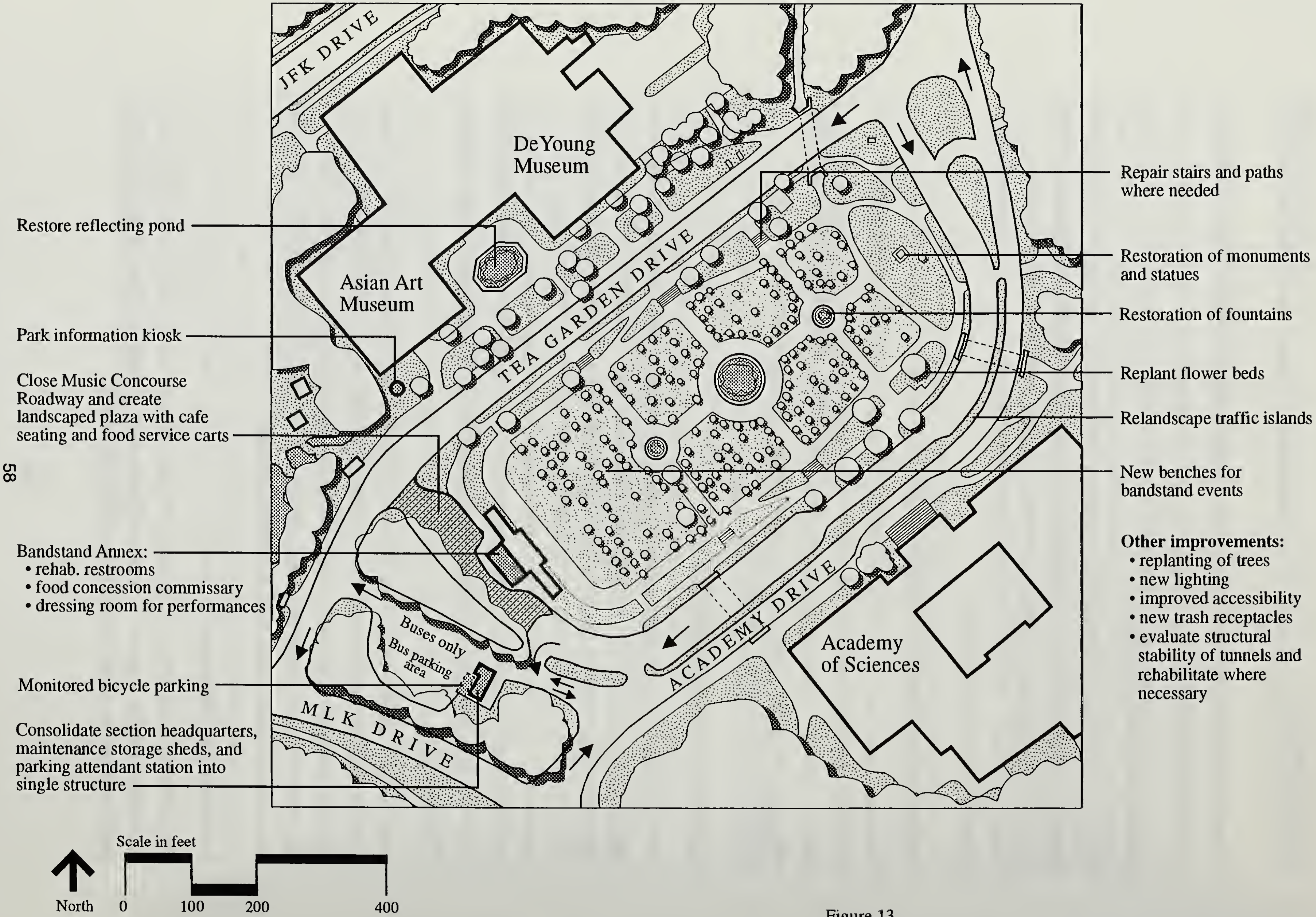
Restore reflecting pond
Park information kiosk
Close Music Concourse Roadway and create landscaped plaza with cafe seating and food service carts
Bandstand Annex:
• rehab. restrooms
• food concession commissary
• dressing room for performances
Monitored bicycle parking
Consolidate section headquarters, maintenance storage sheds, and parking attendant station into single structure
Repair stairs and paths where needed
Restoration of monuments and statues
Restoration of fountains
Replant flower beds
Relandscape traffic islands
New benches for bandstand events
Other improvements:
• replanting of trees
• new lighting
• improved accessibility
• new trash receptacles
• evaluate structural stability of tunnels and rehabilitate where necessary
JFK DRIVE
DeYoung Museum
Asian Art Museum
TEA GARDEN DRIVE
ACADEMY DRIVE
Academy of Sciences
MLK DRIVE
Buses only
Bus parking area
North
Scale in feet
0
100
200
400

Figure 13

Music Concourse Special Area Plan

Source: Royston Hanamoto Alley & Abey

VISITOR FACILITIES ELEMENT - LONG-TERM

The following two actions within the Visitor Facilities Element of the Park Master Plan are identified for potential future consideration and implementation. These actions may require subsequent environmental review when more detailed information is available on the proposed projects. They are discussed at a program-level of analysis for this EIR.

Eastern Park Visitor Center (D)

Several possible facilities in the eastern end of the Park have been identified in the Park Master Plan for consideration as a visitor center: the County Fair Building, the Asian Art Museum/deYoung Museum, the Pioneer Log Cabin, the Conservatory and McLaren Lodge. The visitor center would be developed and operated by a Park conservancy organization and would be staffed to provide information about the Park and sell park-related merchandise. The visitor center would be developed within one of the above mentioned buildings in the Park.

BUILDING AND MONUMENT ELEMENT - NEAR-TERM

The Park Master Plan identifies the Park furnishings, the Pioneer Log Cabin, Statues and Monuments, Beach Chalet, Carousel, McLaren Lodge, the Equestrian Center, the Arboretum Classroom and Nursery for Americans with Disabilities Act (ADA) accessibility improvements and for renovation or restoration of existing structures.[15] These renovation and improvement projects are either typically exempt from environmental review or have already been reviewed and approved and will not be addressed further in this EIR. The Building and Monuments Element projects are summarized on Table 5 on page 21. Buildings and monuments that will be discussed in the EIR follow.

Sharon Building (C)

The Sharon Building is located in the Children's Playground located just off of Kezar Drive. The Sharon Building was constructed in 1888 as a canteen serving children and mothers visiting the Park. The structure was seriously damaged in the 1906 earthquake and reconstructed. A fire in 1974 damaged the structure but it was restored as of 1992.

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[15] The Park has an ADA Transition Plan that requires accessibility improvements to be undertaken when any improvements are made to Park facilities.

It currently houses an art center for the Sharon Arts Program. This program is outgrowing the space. If a suitable space can be found for relocating the Art Program, the Sharon Building could be reused as a cafe or restaurant or other visitor serving use.

McLaren Lodge (C)

McLaren Lodge is the administrative headquarters of the Recreation and Park Department. It was originally built to house the Park Commission offices and as a residence for John McLaren. It still serves as the Commission meeting location and also houses offices and provides limited visitor information at the reception desk. The building is in fair condition, but requires seismic, accessibility, and other improvements.

Conservatory of Flowers Rehabilitation and Nursery Addition (C)

The Conservatory of Flowers and Conservatory Valley, located in the eastern part of the Park off JFK Drive, have local landmark status as unique historic features in San Francisco. The Conservatory is also on the National Register of Historic Places. The Conservatory building dates back to 1878 and is an example of Victorian architecture of a wooden glass house. It is rapidly deteriorating due to its wood structure and humid interior, and was damaged in the storms of 1995 and 1996. The wood structure has seismic deficiencies, and is known to contain lead-based paint and asbestos. The seismic rating along with its visibility, use, and historic value, places the Conservatory high on the list for future rehabilitation plans under the Park Master Plan. Renovation would include ADA accessibility improvements.

Specific plans and specifications for the seismic retrofit and renovation work are not available, however, a 1992 assessment recommended strengthening the structure laterally, to increase stiffness and reduce deflections and glass breakage in the event of an earthquake.[16] Renovation work would be done in consultation with the San Francisco Landmarks Preservation Board and would require a Certificate of Appropriateness prior to project approval. Work would likely be carried out in phases, with some plants removed, some shifted to other areas and others protected in place.

The adjacent Rose House was a nursery for the Conservatory that was demolished in 1994 due to its deteriorated condition The original panels in the structure were saved to be used as models for a future reconstruction.

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[16] "Seismic Assessment of Various City-Owned Buildings" by URS Consultants and GKO Associates for DPW.

In addition to the rehabilitation of the Conservatory structure, a Special Area Plan for the landmark Conservatory, its ancillary buildings, and Conservatory Valley would be prepared. Analysis would address the Conservatory's mission of presenting floral displays, maintaining a valuable orchid collection, using historic support structures to provide a setting for special events, education, and visitor services including retail sales and food service. The Special Area Plan would consider the addition of 3,000 square feet of modern nursery facilities within the confines of the existing Conservatory service yard. The nursery facility would be constructed of aluminum frame-lexan panels, and would be about 20 feet high by 30 wide. Reconstruction for the Conservatory facilities is scheduled for within the next five years.

County Fair Building Rehabilitation (C)

The San Francisco County Fair Building is located on Martin Luther King Drive at 9th Avenue and Lincoln Way. Built in 1961, this four room single-story building contains a gallery, auditorium, recreation and meeting rooms, and office space. This 14,828 square foot building is in good condition but has been identified as needing seismic upgrades, minor repairs to deteriorated roof eaves and asbestos removal. The restrooms and entry hardware would need to be modified to meet ADA accessibility standards.

A potential new use for a portion of the building is a joint visitor center for the Park and the arboretum. This development could include an exhibit area, horticultural and Park related retail sales, and possibly other revenue generating uses. The Special Area Plan for the arboretum (See Special Area Element of Park Master Plan) includes consideration of the County Fair Building. The Arboretum Society has developed the plan and would be charged with implementing it in the coming years.

Urban Forestry Center Rehabilitation (C)

The Urban Forestry Center buildings are located off Middle Drive at 25th Avenue in the western part of the Park near Elk Glen Lake. The Center was the former McQueens Sewage Treatment Plant, which was operated by the San Francisco Department of Public Works (DPW) until 1982 when it was closed and turned over to the Urban Forestry Division of the Recreation and Park Department. The five small buildings and other temporary structures are used as a staff field office and include: a tool room, office, locker room, workout room , motor room and storage area. Proposed rehabilitation work would include: patching cracks in stucco, repairing windows, painting, upgrading plumbing, correcting drainage, repairing sewer lines, providing code-complying restroom facilities, improving electrical facilities and removing debris.

Equestrian Center Caretaker Unit (C)

The Equestrian Center is located south of JFK Drive between Spreckels Lake, Golden Gate Park Stadium and Lindley Meadow, at the center of the western part of the park. It is the site of the Golden Gate Park Riding Academy. The original grandstand and four stall buildings were constructed as a WPA project in 1938. The "Building and Monument Survey" conducted as a technical study for the Park Master Plan in 1993 recommended repairs to the existing buildings (patch cracks, replace missing/broken glass and roof tiles, repair deteriorated concrete and asphalt surfaces, paint, and provide disabled access ramp to the Grandstand). A perimeter fence is proposed for night security. Covering the central ring is also recommended to enhance use of the facility. Improvements would be made as part of a future concession agreement.

A caretaker lives in a mobile trailer unit on the stable premises. Twenty-four-hour on-site supervision is a requirement of the U.S. Department of Agriculture for public stable operation. The Park Master Plan proposes that permanent living quarters be constructed on site to meet the USDA requirement for 24-hour supervision. The addition of the caretaker facility would not exceed 1,000 square feet. The living unit would be constructed within the limits of the existing stable compound. The unit may be constructed above an existing structure. If this is done, the total height of the structure, as measured by the Planning Code, would not exceed 25 feet.

Tennis Clubhouse Expansion (C)

The Tennis Clubhouse is located west of Sharon Meadows, off Bowling Green Drive in the eastern part of the park. The Park Master Plan proposes expansion of this structure to address two needs: disabled access and player amenities. According to the Master Plan, the existing building footprint must be expanded to provide facilities for the disabled (i.e., toilets, showers, entry ramps). In addition, prospective concession operators have noted that limited expansion (estimated to be 1,500 square feet) of the facility would improve space available to clubhouse users and players and could increase revenues used by the city to maintain this facility. The expansion of the existing single story structure would be within the existing hard surface paved area.

Golf Course Clubhouse (C)

The Golf Course Clubhouse is located near 47th Avenue and JFK Drive off Fulton Street in the western part of the park. The Clubhouse contains an office, a small food concession, and equipment rental and a restroom. The existing footprint of the golf clubhouse is proposed for limited expansion to meet disability access requirements and improve space available for golfers waiting to play. The proposed improvements could also increase revenue generating potential.

The proposed expansion of 750 square feet would be limited to within the edge of the building overhang. This could be accomplished within an existing hard surface area.

Millwright's House Demolition/Construct New Recreation Pavilion (C)

The Millwright's House, adjacent to Murphy's Windmill (South Windmill) near the west end of Martin Luther King Drive, dates back to 1909 and is currently used as a private residence. The two-story, five room structure would require structural and accessibility improvements and code modifications to meet seismic and ADA standards if it were to be made available for public use. The initial building evaluation prepared for the Park District indicated that it may not be cost effective to renovate the building as a public use facility because it was designed as a single family residence.

The Park Master Plan proposes to demolish this non-recreation serving structure, and within the footprint of the compound created by the house, driveway, garage and other outbuildings, construct a one-story recreation pavilion of approximately 2,500 square feet. The pavilion would provide visitor services for the west end of the Park (restrooms, facility for rental of bicycles now vended out of a cart on the Great Highway), limited food service and a reception hall for approximately 100 people. A subsequent evaluation would be conducted by the Recreation and Park Department to determine the viability of reuse of the existing building as an option to demolition. This EIR includes an Alternative that would preserve the building.

BUILDINGS AND MONUMENTS ELEMENT - LONG-TERM

Five building restoration/improvement actions have been identified for implementation in future years (five to ten year schedule) and require Recreation and Park Commission approval and funding. These actions are included in the EIR to be analyzed at a program-level. The five actions follow.

Kezar Pavilion Improvements (D)

Kezar Pavilion, located on the east side of the Park near Stanyan Street, is a gymnasium building that has 4,000 seats for basketball and other court games. The building is a one-story structure constructed of reinforced concrete walls and steel frames. The building condition has been assessed in the 'Building and Monument Survey' (April, 1993) as in "fair" condition, but needs seismic upgrading. The building also needs accessibility improvements to meet ADA standards.

Murphy's Windmill (South Windmill) Restoration (D)

Murphy's Windmill is located on Martin Luther King Drive near the Great Highway at the west end of the Park. The windmill was built in 1906 to pump well water to other areas of the park. It has fallen into disrepair, its sails have been removed, and the structure is deteriorating (concrete is pitted, slate tile fasteners have disintegrated, wood sheathing is missing, copper cladding has corroded).

The Park Master Plan calls for the windmill's restoration similar to that of the North (Dutch)Windmill. The North Windmill was restored in 1981, and is not part of the improvements proposed in the Park Master Plan. The North Windmill is 75 feet high and was designed to pump 30,000 gallons of water/hour. Both windmills are highly visible features of the west end and their condition reflects on the overall condition of the park.

Park Emergency Hospital Renovation (D)

The Park Emergency Hospital building was the first permanent, freestanding building for the San Francisco Department of Public Health emergency hospital service. Located at 811 Stanyan Street this single story structure served as an emergency hospital from 1902 until 1990. It continued as an ambulance station until 1991. The building is identified on the city Landmark Inventory as #201, but it has not been rated nor designated as eligible for the State or federal historic property or landmark register. Under the Park Master Plan, the building would be renovated, including accessibility and seismic improvements, to house a new use. Possible new uses include a recreational activity use or as offices for a Park conservancy organization.

Arboretum Library Storage Area Renovation and Disabled Access Improvement (D)

The Helen Crocker Russell Library of Horticulture, located in the Arboretum near 9th Avenue, was dedicated in 1972. The library has congested shelf space for over 14,000 books and periodicals on the mezzanine level and currently does not provide access to the disabled. The Master Plan for the Strybing Arboretum and Botanical Gardens (1995), identified in the Golden Gate Park Master Plan as the Strybing Special Area Plan, proposes expanding the stack area and providing disabled access by creating a basement storage area of approximately 1,500 square feet beneath an adjacent hard-surface courtyard. A new elevator within the existing library would provide access to the proposed lower level and to the library's existing mezzanine. Construction of the basement would entail shoring of the adjacent facilities. The area would need to be excavated and excavated materials removed from the park. Construction activities would require temporary cordoning off or rerouting visitors entering the Arboretum to avoid the construction area.

UTILITIES AND INFRASTRUCTURE ELEMENT

The pedestrian tunnel/bridge project which involves minor maintenance of existing facilities is not discussed further in this EIR. Other projects, such as tennis court lighting improvements and general utilities repair and maintenance would be typically exempt from environmental review, but are described for potential cumulative impacts assessment. The Utilities and Infrastructure Element Projects are summarized on Table 6 on page 25.

In 1992 the voters of San Francisco passed the Golden Gate Park Infrastructure Bond to rebuild the Park's deteriorating water and electric system. The existing water system consists of seven wells and pumps, three concrete-lined reservoirs (North Mill, Strawberry Hill, and Waterworks), and a pipeline distribution system. Much of the existing system was constructed over 75 years ago, and is considered by the Recreation and Park Department and the Department of Public Works as inadequate, inefficient and deteriorated. A similar situation is true of the Park's electrical system that was installed over a half century ago and needs to be replaced or upgraded to comply with the National Electric Code.

As part of the Infrastructure Bond, five master plans have been developed by the City's Department of Public Works: a Water Delivery System Master Plan; a Sewer Master Plan; a Lighting Master Plan; and ADA Master Plan; and an Electric Master Plan. These background reports/plans are available for review as part of the project file No 95.243E at Planning Department Office of Environmental Review, 1600 Mission Street. The Park Master Plan briefly summarizes the utility system master plans and proposed system improvements.

Tennis Courts Lighting Improvement (B)

The tennis courts have occupied the same site in the eastern part of the Park along Middle Drive East since 1894. The complex has been expanded over the years and now consists of 21 courts, serving almost 100,000 players annually. Although a fee is now charged to use the courts, the revenue collected does not cover the expenses to maintain the complex. Under the Master Plan, night lighting would be installed to extend playing hours and to generate greater revenue. Light poles 30 - 35 feet high would be installed around the perimeter of the courts. Lights would be down-shaded to direct light to court surfaces at an intensity of about 15 foot-candles, and would operate nightly until 10:00 p.m.

General Utilities Repair and Replacement (B)

The Park Master Plan includes a number of actions in this category that are typically exempt from environmental review on an individual project basis. Examples are electrical distribution system repairs, replacing Park lighting, sewer and utility replacement/repair actions, domestic water supply improvements to meet code standards. These actions are routine maintenance actions and will not be discussed further in this EIR, except as they relate to potential cumulative impacts.

Park Sewer Replacement

The San Francisco Department of Public Works, Bureau of Engineering (DPW/BOE) has inventoried the condition of existing Park sewer and drainage facilities and identified alternatives for addressing current and anticipated problems. Most of the proposed sewer and drainage infrastructure work would entail repair of damaged sewer lines, upgrading of existing force main pumps, installation of French drains, and installation of drainage structures and leach fields to better handle stormwater flows. From west to east, installation of sewer lines are proposed in the following locations:

- A line from Park Maintenance Section headquarters (West of Bercut Field) to JFK Drive, east along JFK Drive to Chain of Lakes Drive West, where it would connect to the existing manhole southwest of the North Lake restroom.

- A line starting near Transverse and Middle Drive West, picking up the drainage from the Compost area and the flow from the Urban Forestry Yard restroom and area drainage, flowing west on Middle Drive to the south Polo Field restroom, across the Polo Field to the north Polo Field restroom, then north to 36th Avenue and Fulton, picking up the flows from the stable areas.

- A line to pick up the sanitary flows from the Academy of Sciences and tunnel drainage from the Music Concourse tunnels. The line would flow north out of JFK Drive, then east of Eight Avenue, and out to Fulton.

- A line along Bowling Green Drive, picking up the Sharon Meadows restroom, the Sharon Building, the Bowling Green and Tennis Clubhouse restrooms, the flows from the Conservatory and the new Conservatory restroom, then out of the Park at Sixth Avenue.

All other work within the Park will entail repair of damaged sewer lines, upgrading of existing force main pumps, and installation of drainage structures and leach fields to handle storm water flow.

Park Lighting Improvements

The Park Master Plan describes the existing lighting system in the Park as antiquated and in need of replacement. Three priority levels for provision of future lights are recommended: the "highest" priority level includes pedestrian night use areas, pedestrian/vehicle/bike intersections, and roadways with heavy night use; the "medium" priority level includes pathways to night use areas, roadway intersections, and selected Park roads and the "low" priority level includes all other Park roads.

The Park Master Plan identifies night use areas to include: McLaren Lodge, Kezar Pavilion, Kezar Stadium, Sharon Building, Conservatory, Academy of Sciences, de Young Museum/Asian Art Museum, County Fair Building, Senior Center, Beach Chalet, and Angler's Lodge. Some potential night use areas include the tennis courts, Pioneer Log Cabin, and Equestrian Center. Lights would meet National Electric Code and local building code requirements. The proposed light fixtures would be acorn-style luminaires on traditional poles (16-18 feet high) except at the tennis courts and probably the Equestrian Center. The luminaires would be color corrected high pressure sodium (150, 100, or 70 watt). Lighting is for safety purposes and is not intended to increase night use of the Park (except at the tennis courts, Pioneer Log Cabin and Equestrian Center).

Reconstruct Water Supply System

Water system infrastructure proposals included in the Park Master Plan and evaluated in this EIR are known collectively as the Park Water Supply System Master Plan and were funded under the 1992 Golden Gate Park Infrastructure Bond Program.[17] These proposals would improve the efficiency of well water production, storage and distribution facilities; reduce use of potable SFWD water for Park irrigation; modify the role of Park lakes in the irrigation system; and allow for incorporation of recycled water into the Park irrigation system to meet future demand.

Proposed actions include construction of up to a 2.5 million gallon subsurface groundwater reservoir; an adjacent, automated central pumping plant with a small above-ground entry structure; three wells to replace deteriorated existing wells in the west end of the Park; and two separate pipeline systems for irrigation -- one carrying well water and the other carrying recycled water. Park lakes would continue to be supplied by well water, via a delivery line. Use of Elk and Stow Lakes for irrigation water storage would be discontinued. The Water Supply System Master Plan (Figure 14) is based on the following design criteria:

- *low maintenance and operation requirements*
- *simplicity of operation and maintenance*

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[17] San Francisco Recreation and Park Department, *Golden Gate Park Draft Master Plan*, March 1995, p.9-2.

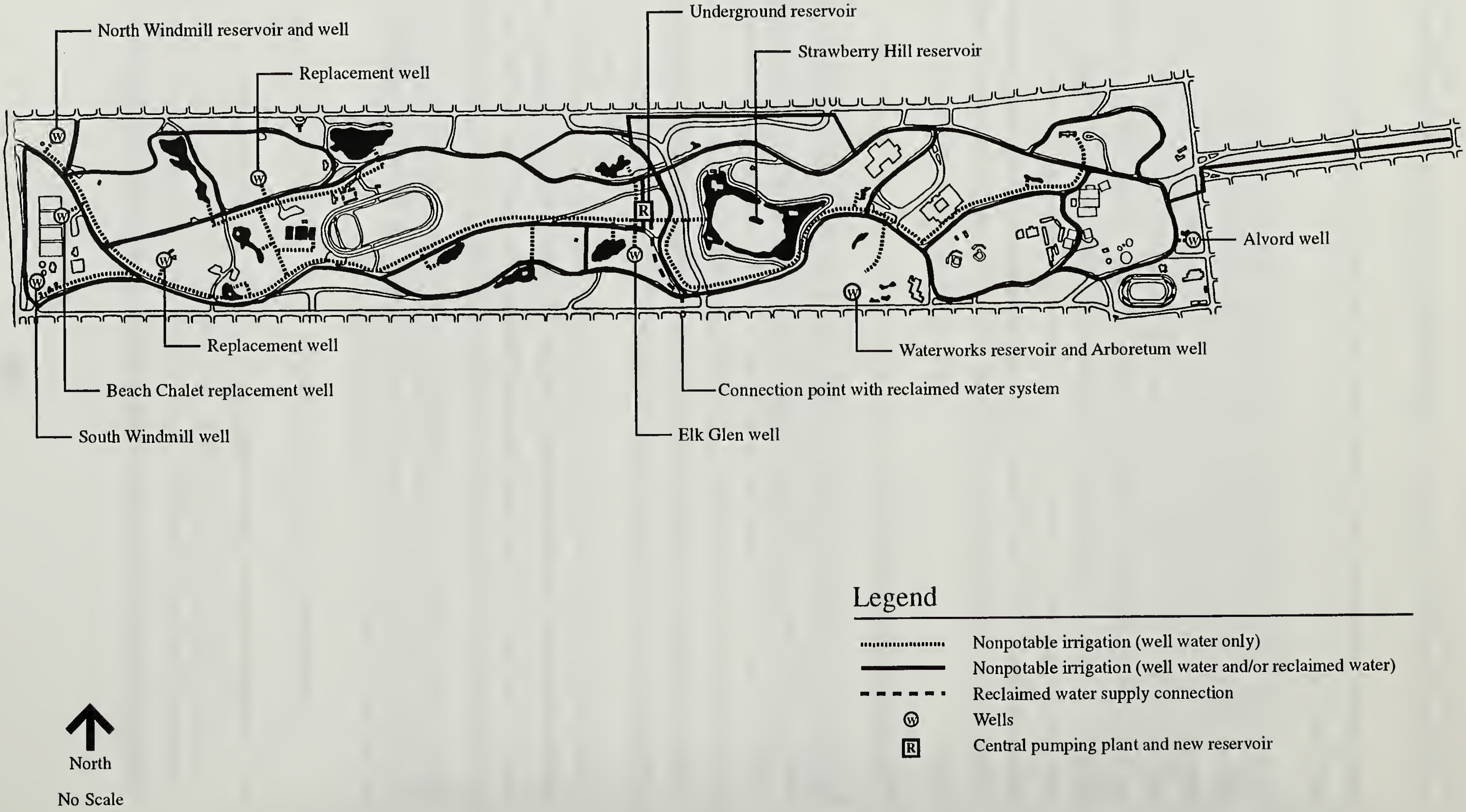
North Windmill reservoir and well
Replacement well
Underground reservoir
Strawberry Hill reservoir
Alvord well
Replacement well
Beach Chalet replacement well
South Windmill well
Waterworks reservoir and Arboretum well
Connection point with reclaimed water system
Elk Glen well
Legend
Nonpotable irrigation (well water only)
Nonpotable irrigation (well water and/or reclaimed water)
Reclaimed water supply connection
Wells
Central pumping plant and new reservoir
North
No Scale

Figure 14
Proposed Water Supply System Master Plan

- *dependable supply of clean, high pressure water for irrigation and lakes*
- *flexibility to utilize well water and/or reclaimed water as a supply source*
- *a useful life of 50 to 100 years*
- *compatibility with the Golden Gate Park Master Plan*
- *minimum disruption of the park, and the existing irrigation system, during construction*[18]

Refurbish Wells and Pumps (B) and Water Distribution and Control System (C)

Golden Gate Park is currently operating six of its seven production wells (shown on Figure 13) to irrigate approximately two-thirds of the watered areas within the entire park. The total water production of all the operating wells is currently estimated at 3,750 gallons per minute (gpm) or 5.4 million gallons per day (mgd) if continuous pumping were to be attempted, however, there is inadequate storage for continuous well production. Due to the advanced age of the Park's well system (four of the seven wells were put into production before 1930), the limited production that is available, and the condition of the current pumping equipment, three of the existing wells are proposed for rehabilitation or replacement. (Elk Glen, Arboretum #6, and Alvord). The Elk Glen well could be retained for potable water. The Alvord well would be used only to fill Alvord Lake. Three replacement wells would be drilled: west of North Lake; west of Bercut field within the maintenance yard compound; and east of the Beach Chalet.

Three existing wells that are in poor condition (North Mill East, North Mill West and South Mill) would be replaced under the proposed project. The replacement wells would be built in the western part of the Park above the thickest part of the aquifer, and would pump directly into the main groundwater reservoir. Replacement wells would be designed to produce approximately 1,100 gpm each.[19] Each well would be 350 to 450 feet deep and 14 inches in diameter, and equipped with water cooled turbine pump. The total estimated well water production capability would be 2,000 gpm to partially meet peak demand of 2,080 gpm or 3.0 mgd (remaining peak demand would be met by combined recycled and domestic water supplies).[20]

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[18] San Francisco Recreation and Park Department, *Golden Gate Park Draft Master Plan*, March 1995, p.9-2.

[19] San Francisco Recreation and Park Department, *Golden Gate Park Master Plan Environmental Evaluation*, Draft dated May 5, 1994.

[20] Geo/Resource Consultants, Inc., *Proposed Water Wells, Golden Gate Park, San Francisco, California*, prepared for Ace Pacific Company, September, 1994.

Five well water test sites have been drilled in the west end of the Park to evaluate the extent of groundwater available, the condition of the aquifer, and to quantify the impact of pumping in the area. It is estimated that to irrigate a large part of the Park entirely with well water and to eliminate the dependence on San Francisco Water Department supplies, the pumps would be required to produce a total of 1.0 million gallons per day (mgd) during low use periods and 3.0 mgd during high use periods under the proposed interim (1996-2005) distribution system. Well water, from 2 to 3 wells, would be pumped to a centrally located underground reservoir and pumping plant off Middle Drive West and would be distributed for use in lakes and irrigation for sensitive plant areas of the park. As reclaimed water becomes available (after 2005), the use of well water for irrigation would decrease to about 150,000 gallons per day or 14% of the interim demand. Reclaimed water is expected to supply approximately 700,000 gallons per day for irrigation purposes by 2005.

Automatic Irrigation System (B)

As part of the City of San Francisco's 1995 Draft Recycled Water Master Plan, Golden Gate Park would begin receiving recycled water for irrigation use from the proposed tertiary treatment plant located at the Fleishacker Pool site adjacent to the Oceanside Water Pollution Control Plant (OWPCP), near San Francisco Zoo, in approximately 2002. The recycled water would be used only for irrigation and (possibly) fire protection. No recycled water would be used in Park lakes or for any domestic uses (drinking fountains, toilets, washing, etc.). Annual demand of 1,972 acre feet (1.76 mgd), and peak period demand of 3.0 mgd, are projected for Golden Gate Park recycled water irrigation requirements.[21]

As specified in the City's Draft Groundwater and Recycled Water Master Plans and the Draft EIR on these plans (File No. 92.371E), use of recycled water in the Park would be carried out in accordance with all applicable State and City public health standards and regulations.[22] Regulations regarding the use of recycled water for irrigation in the vicinity of potable water supply wells are set forth by the California Code of Regulations (CCR) Title 22. These regulations stipulate that recycled water used for irrigation must be at least 200 feet away from an irrigation well, and 500 feet away from any well used for potable water supply.

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[21] City and County of San Francisco, *Recycled Water Master Plan,* Draft, February, 1995.

[22] City and County of San Francisco, Department of City Planning, *San Francisco Recycled Water Master Plan and Groundwater Master Plan Draft Environmental Impact Report,* November, 1996.

The treated wastewater would be pumped through a dedicated pipeline system from the treatment facility to the proposed Sunset Zone reservoir at Lincoln High School. From the storage reservoir, recycled water would be pumped to Golden Gate Park and distributed for irrigation use via a valve vault near the existing Elk Glen Well.[23] Reclaimed water would not be stored in the Park but instead, would flow directly into a dedicated recycled water irrigation pipeline system (described below).[24]

The Park would be divided at Transverse Drive into two pressure zones due to the elevation difference between the western and eastern ends of the Park. Two irrigation pipeline systems would be constructed throughout the Park, mainly beneath existing roadways. The two pipelines would distribute both well water and recycled water for irrigation to low sensitivity vegetation (turf and forest). The system would have the capability to deliver well water as needed to the areas normally receiving recycled water, in order to meet recycled water use regulations for irrigation during daytime use periods.

The secondary pipeline system would distribute only well water to vegetation of potential high sensitivity to compounds (such as salts), which are found in higher concentrations in recycled wastewater than Park well water. Areas proposed to be irrigated with well water only include flower displays, native plant areas, redwoods, rhododendrons, tree ferns, flowering fruit trees, and the Botanical Gardens. Well water would also be used for daytime watering, new forestry plantations, and landscaping around lakes.

New Underground Reservoir And Central Pumping Station (C) and Return Reserve Sites to Parkland (D)

Within the Park there are three concrete-lined reservoirs (North Mill, Strawberry Hill, and Waterworks) with a combined storage capacity of 890,000 gallons (see Figure 14, p. 67). The largest of these, the Strawberry Hill reservoir, is uncovered and is not at a high enough elevation to provide sufficient water pressure by gravity flow for operation of automatic irrigation systems in the east end of the Park. Elk Glen Lake and Stow Lake are also used for water storage, although only a small portion of their capacities are available for irrigation use. Stow Lake is filled by overflowing water from Strawberry Hill reservoir. Water for irrigation is withdrawn by gravity from both Strawberry Hill reservoir and from Stow Lake. Stow Lake also has a Fire Department connection for use during emergency fire fighting with gravity flow connections to hydrants on Fulton Street. The North Mill reservoir is a 100,000 gallon concrete tank with a sheet metal roof that is connected by a 10-inch cast iron pipeline into the Strawberry Hill reservoir. The Waterworks reservoir, located at the Arboretum, is an open concrete 150,000 gallon tank that is connected to a 10-inch cast iron irrigation distribution system.

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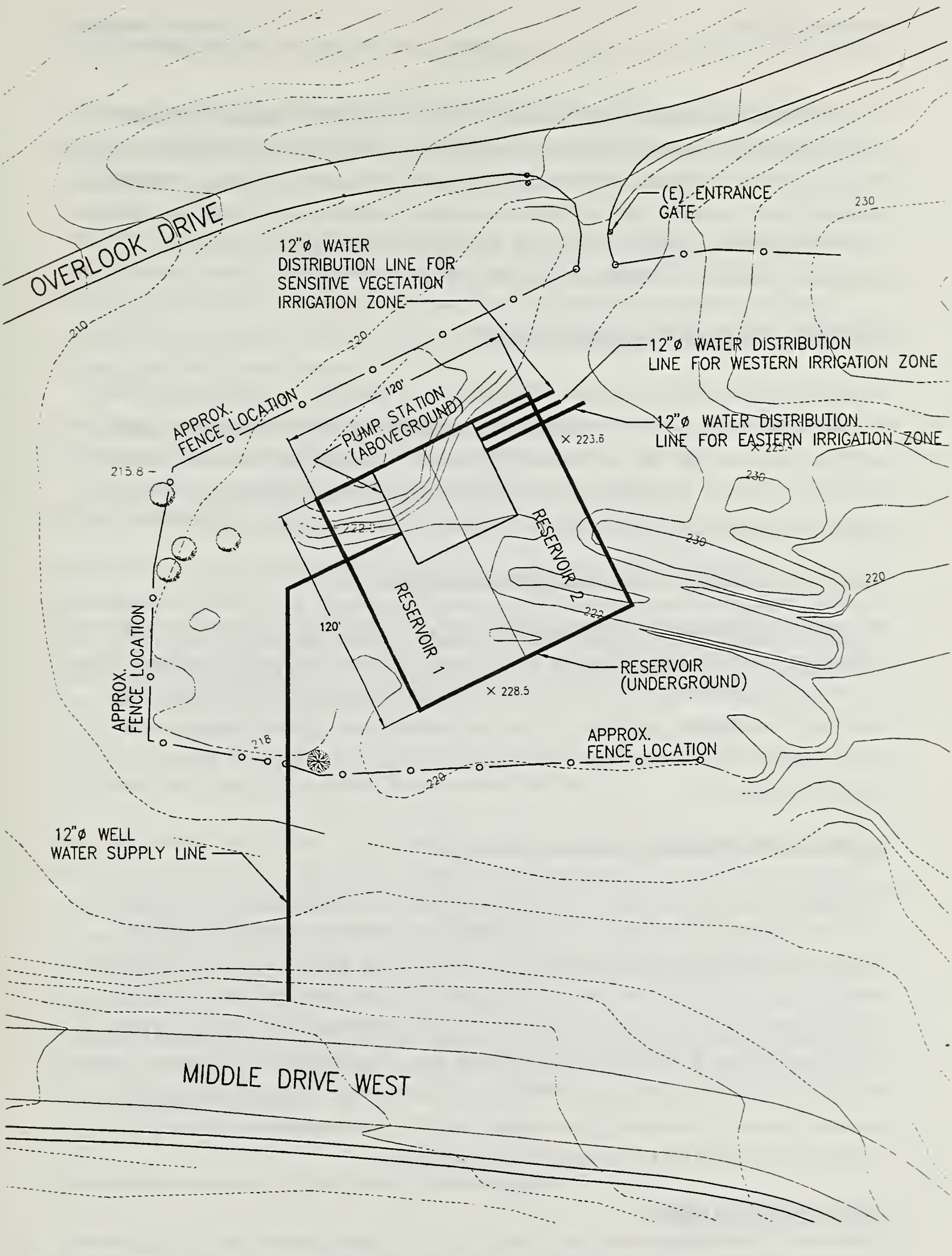
[23] ibid.

[24] Shannon Maloney, San Francisco Department of Public Works, Bureau of Engineering, personal communication, November 28, 1995.

The existing reservoirs lack storage capacity to allow a 24 hour per day well production and irrigation of the Park during nighttime. Two of the three reservoirs do not have covered storage and thus water is exposed to organic debris and bird droppings. This condition degrades the quality of water used for irrigation. The Strawberry Hill reservoir would be eliminated. A new water reservoir is proposed, which would store up to 2.5 million gallons per day to meet the Park's nighttime peak irrigation demand (3.09 mgd) and maintain a minimum volume of 0.2 mgd for emergency fire fighting. The underground reservoir would be located in the central part of the park under an existing maintenance area (compost area) located off Middle Drive West (see Figure 15). The proposed site is on the far west end of the compost area enclosure in order to minimize impacts to composting operations during and after construction, and place the pump station access and ventilation systems upwind (prevailing) from the dusty and dirty compost area operations. Once the reservoir is constructed, the composting activity would be returned to the site. The replacement reservoir would enable three existing reservoirs to be returned to parkland.

The proposed reservoir would be a conventional design reinforced concrete structure. The conceptual plans show a trapezoidal design to conform to the site. The structure would be about 154 feet by 164 feet by 26 feet deep. The reservoir would be about 200 feet above the natural aquifer under the Park. The top slab of the structure, except at the entrance, would be covered with a two-foot deep layer of earth to prevent damage from tracked vehicles and other surface operations. Design loadings for 400 pounds per square foot are proposed to allow continued use of the area above the underground reservoir for compost operations. Construction of the reservoir would take about 24 months and would involve heavy earthmoving equipment excavating an estimated 24,000 cubic yards of sand. Excavated soils would be stockpiled at the site for use in other areas of the park, or for filling the existing reservoirs.

An above-ground central pumping station is proposed as part of the reservoir facility. The pump station would supply all the pressurized groundwater, and eventually reclaimed water, for Park irrigation and would accommodate the use of both well and reclaimed water and permit the old pump stations at the existing reservoirs to be phased out. The pumps would be electric motor driven and would be located in a below ground chamber of the reservoir facility. The pump room


OVERLOOK DRIVE
12"ø WATER DISTRIBUTION LINE FOR SENSITIVE VEGETATION IRRIGATION ZONE
(E) ENTRANCE GATE
230
210
220
12"ø WATER DISTRIBUTION LINE FOR WESTERN IRRIGATION ZONE
120'
PUMP STATION (ABOVEGROUND)
APPROX. FENCE LOCATION
12"ø WATER DISTRIBUTION LINE FOR EASTERN IRRIGATION ZONE
× 223.6
215.8
230
222.0
RESERVOIR 2
230
220
RESERVOIR 1
222
120'
APPROX. FENCE LOCATION
RESERVOIR (UNDERGROUND)
× 228.5
APPROX. FENCE LOCATION
218
220
12"ø WELL WATER SUPPLY LINE
MIDDLE DRIVE WEST

North

No Scale

Figure 15

Proposed Reservoir/Pump Station Site Plan dimension would be about 35 feet by 75 feet with a 20 foot by 35 foot underground mezzanine for mechanical and electrical equipment. The exterior of the pump house building would be concrete masonry painted to blend with the surrounding Park setting. It would be landscaped to buffer it from public views. An electric power line, sanitary sewer, domestic water and drain would be tied into existing services. A design variant to the above-ground pump station would be an underground facility with a small above-ground entrance.

MAINTENANCE AND OPERATIONS ELEMENT

The maintenance and operations areas within the park are necessary for efficiency and care of the park. One proposed action, the additional screen planting at various maintenance facilities, would typically be exempt from environmental review and is therefore not addressed in this EIR. The other two projects: the western park maintenance headquarters reconfiguration and the log storage area relocation and consolidation are addressed at a project level in this EIR.

Western Park Maintenance Headquarters Reconfiguration (C)

The western Park maintenance headquarters located off of JFK Drive consists of a concrete shed building and several container structures that are used for storage of equipment and tools. It sits in a large open asphalt area and is not screened from adjacent areas. The Park Master Plan recommends consolidating storage containers with the building by moving them adjacent to it. The Park Master Plan also proposes removing excess areas of asphalt and re-landscaping and reforesting these areas.

Log Storage Area Relocation And Consolidation (C)

Up to 500 logs at a time are stored in the log storage area located north of the Bison Paddock using about 0.8 acre of Park land. The Park Master Plan proposes a smaller storage area consolidated with another maintenance area, since the existing site is visible from JFK Drive and adjacent to a major hiking/pedestrian trail. One option identified in the Park Master Plan is to locate the new storage area in the southeast corner of the Richmond Sunset Treatment Plant site off the Great Highway or within the existing compost area. Another option in the Plan is to reduce the volume of logs to be stored by purchasing a log chipper-grinder that would operate in the compost area next to the existing branch chipper machine. Landscaping and a forested buffer are proposed to screen the log storage area from public view.

SPECIAL AREAS ELEMENT

The Special Areas Element describes the relationship and design implications of individual actions in special areas of the Park to provide a conceptual plan for the improvements. The Special Areas are: the Music Concourse, the Strybing Arboretum and Botanical Gardens, the County Fair Building, the Richmond Sunset Treatment Plant Site, the Bison Paddock, de LaVeaga Dell and the AIDS Memorial Grove, and Park Entry Improvements, and the West End.

A number of the actions described in the Park Master Plan under the Special Areas Element are also addressed under other elements of the Park Master Plan. Maintenance and repairs of lighting, for example, are discussed under the Utilities and Infrastructure Element, and ADA accessibility and landscape actions are addressed under the Park Landscape Element and the Buildings and Monuments Element.

The actions within the Special Areas Element that have not been previously addressed follow. The Special Areas Element projects are summarized in Table 8 on page 28.

Music Concourse

Many of the actions for the Music Concourse are typically exempt from environmental review or have already received environmental exemptions and are therefore not further addressed in this EIR. They include fountain renovation, replanting trees, replacement of lights, repair of stairs and paths, accessibility improvements, and bandstand annex improvements. The four projects listed below are addressed at a project level in the EIR.

Cafe Plaza and Replace Temporary Food Vending Facility (C)

The Park Master Plan identifies an opportunity to improve the food concession in the concourse area as an amenity to park visitors and enhance revenue generation. A Cafe Plaza is proposed for the area behind the bandstand in the Music Concourse. The proposed plan would close the existing road behind the bandstand and create a landscaped plaza with cafe seating and improved food service from a new 400 square foot food service structure or from food carts. The temporary food service mobile trailer facility (approximately 300 sq. feet) located next to the bandstand annex would be removed (see Figure 13, page 57). The plaza would also be available for use as a staging area for special events in the concourse. Emergency and service vehicle access would be maintained.

Consolidate Maintenance and Parking Lot Structures (C)

The existing Park maintenance equipment for the Music Concourse area is stored in the parking lot behind the Bandstand in cargo containers and within a dressing room of the Bandstand Annex. In addition, the parking lot attendant is located in the parking lot within a small booth which also serves as a gift shop for tourists arriving in the tour lot. These existing structures are estimated to be approximately 356 square feet in total (cargo containers 320 square feet and attendant boot 36 square feet.) The Master Plan proposes to remove the cargo containers and temporary booth and consolidate the maintenance activities into one permanent structure of approximately 1,000 square feet. The facility would be located completely within the tour bus parking area and would be screened, as it is now, from public view with vegetation. The new facility would be designed to be compatible with Park features and a consolidated structure would make more efficient use of the available space.

Information Kiosk (C) (see Visitor Facilities Element)

A 75 square foot information kiosk is proposed between the Tea Garden and the Asian Art Museum for displaying Park information and for the sale of Park related merchandise. The kiosk could be operated by a Park association or conservancy group.

Strybing Arboretum And Botanical Gardens

The Special Area Plan for the redesign of the Strybing Arboretum and Botanical Gardens[25] (Figure 16) includes guidelines for a phased development of landscape improvements, relocating the nursery west of the existing location, replacing the public restroom for ADA accessibility, relocating a classroom to the other side of the entryway, redesigned garden entrances, renovation of the County Fair Building as a visitor orientation and exhibit center, creation of a new west entrance, and improving the library basement storage/disabled access. The planned improvements would take place over the next 5-10 year time frame.

All but the following actions have been described under other Park Master Plan Elements. The landscape improvements are typically exempt from environmental review. The nursery complex relocation has received environmental clearance. Both of these projects are addressed under the cumulative impacts analysis. The new western entrance is analyzed at a project-level in this document.

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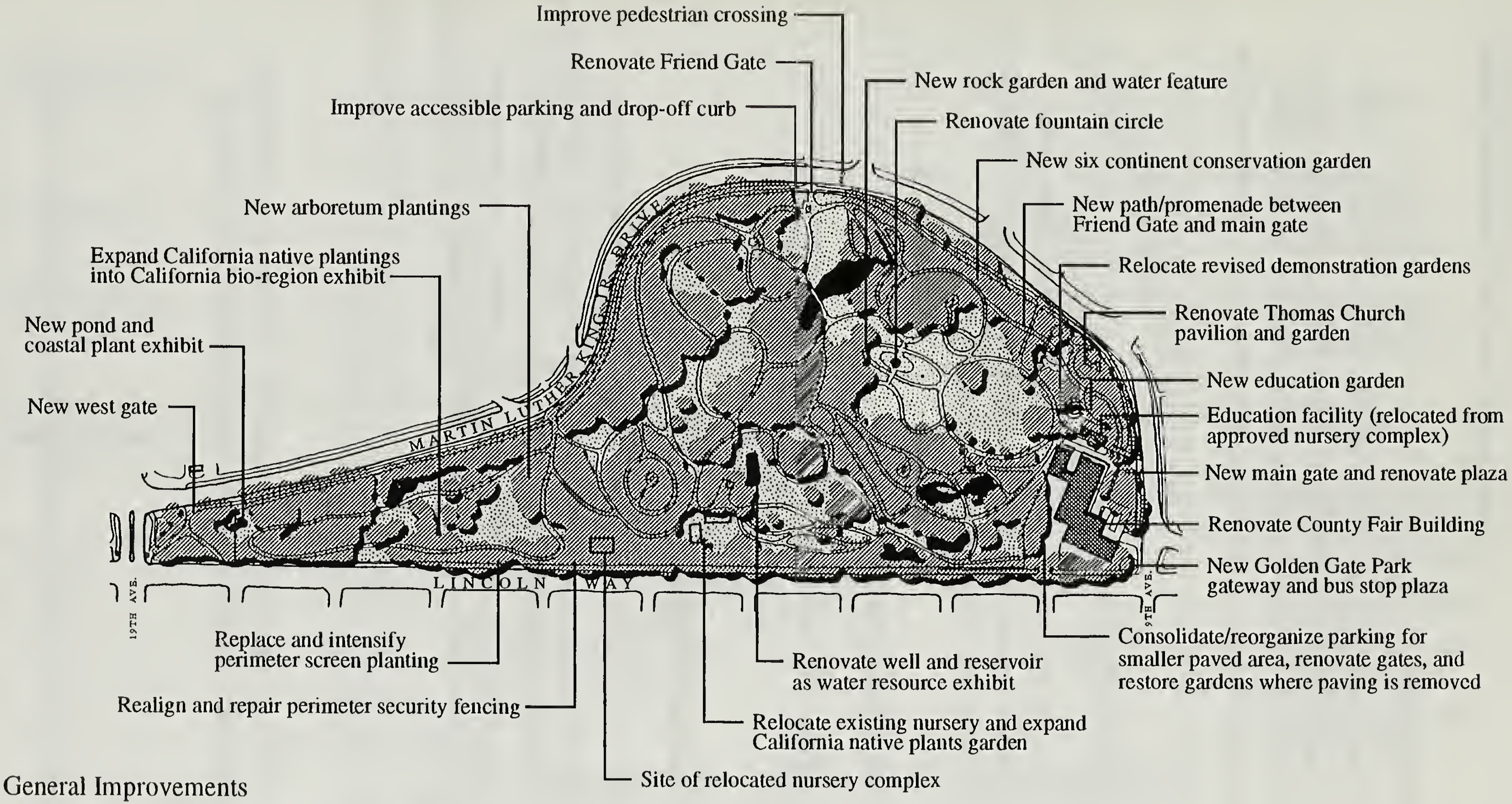
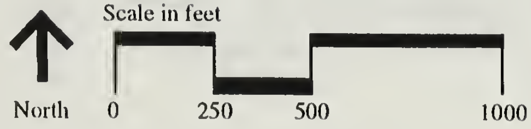
[25] "A Garden for the 21st Century, the Master Plan for Strybing Arboretum & Botanical Gardens, by the Strybing Arboretum society, 1995. (Available for review at the Recreation and Park Department, McLaren Lodge, Fell and Stanyan Streets.


Improve pedestrian crossing
Renovate Friend Gate
Improve accessible parking and drop-off curb
New rock garden and water feature
Renovate fountain circle
New six continent conservation garden
New arboretum plantings
New path/promenade between Friend Gate and main gate
Expand California native plantings into California bio-region exhibit
Relocate revised demonstration gardens
Renovate Thomas Church pavilion and garden
New pond and coastal plant exhibit
New education garden
New west gate
Education facility (relocated from approved nursery complex)
New main gate and renovate plaza
Renovate County Fair Building
New Golden Gate Park gateway and bus stop plaza
MARTIN LUTHER KING JR. DRIVE
LINCOLN WAY
19TH AVE.
9TH AVE.
Replace and intensify perimeter screen planting
Renovate well and reservoir as water resource exhibit
Consolidate/reorganize parking for smaller paved area, renovate gates, and restore gardens where paving is removed
Realign and repair perimeter security fencing
Relocate existing nursery and expand California native plants garden
Site of relocated nursery complex

General Improvements

- Continue reforestation of canopy and windbreak trees
- Renovate pathways for accessibility
- Improve collection identification



Source: Royston Hanamoto Alley & Abey

Figure 16

Strybing Arboretum and Botanical Gardens Special Area Plan

Landscape Improvements (B)

Various landscape improvements are proposed within Strybing Arboretum, including a new six continent conservation garden, a new promenade between Friend Gate and the main gate, a new rock garden and water feature and renovations of existing garden features. A new "bio-region" and display of coastal range habitat will occupy the less developed area of the western end of the Gardens.

Strybing Nursery Complex Relocation (B)

The current nursery facility is dilapidated and in the coldest part of the Park. A new nursery propagation area and research and education center is proposed for a location on the west side of the arboretum. Parking for 16 cars (1 disabled) would be provided.

Creation of a New West Entrance Gate (C)

A new gate is proposed near 19th Avenue to provide access to the Botanical Gardens from the west.

Richmond Sunset Treatment Plant Site

Demolition of the Richmond Sunset Treatment Plant (June 1996) was part of the Oceanside Treatment Plant project and was addressed in the Certified EIR for that project.[26] The 4.4 acre site (Figure 17), located at the west end of the Park, would be returned to parkland and used as a soccer field, picnic area, and log storage area. Parking would be provided on the existing area used for parking by the treatment plant (30-40 spaces). These projects are discussed in other sections of the EIR.

Bison Paddock

Bison have been an attraction in Golden Gate Park since 1891. The paddock is located along JFK Drive in the western end of the Park, west of Spreckels Lake. Bison have occupied this location since 1900.

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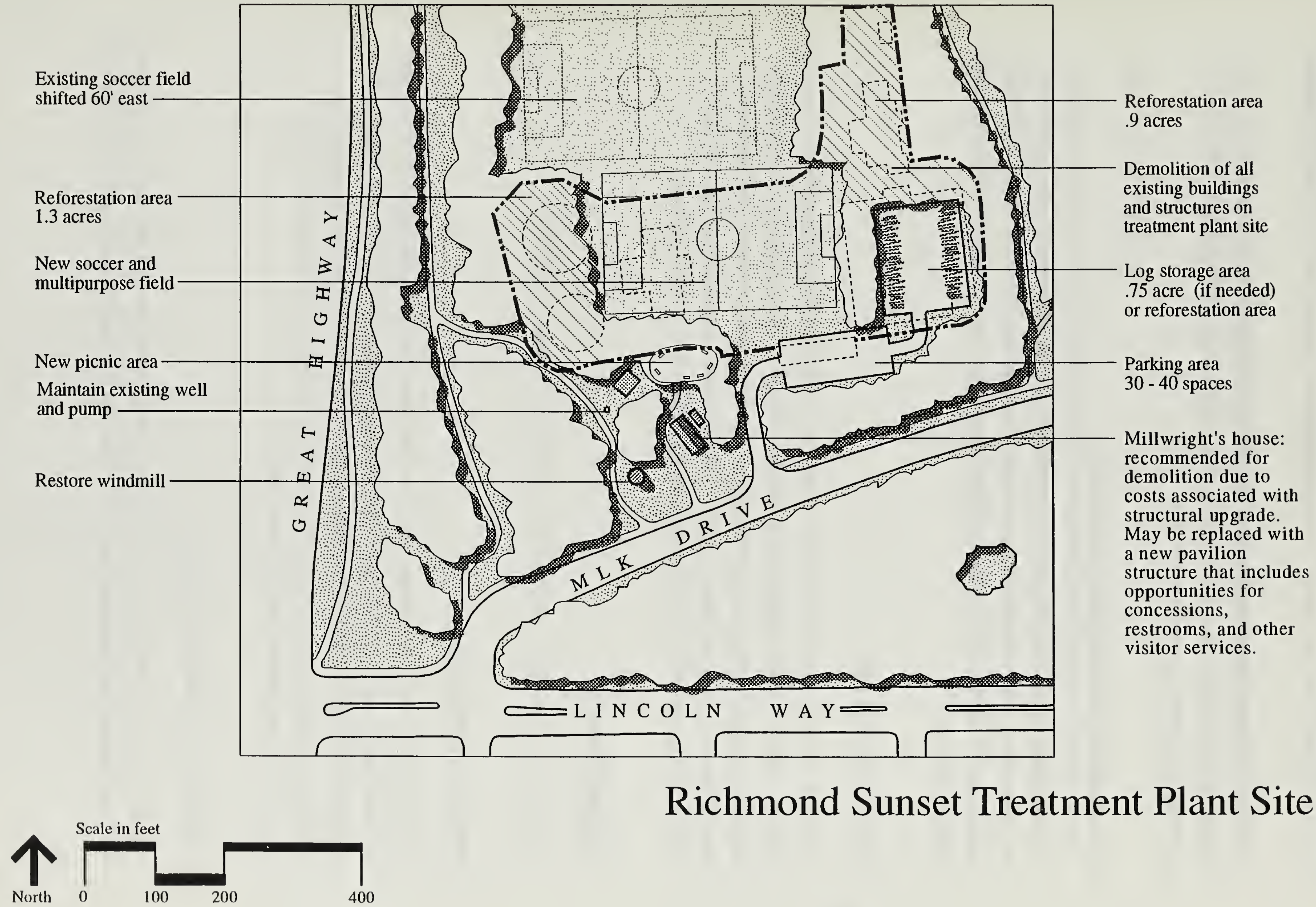
[26] Southwest Water Pollution Control Plant, Final EIR, EE76.389, State Clearinghouse No. 79062504, August 23, 1979.


Existing soccer field shifted 60' east
Reforestation area 1.3 acres
New soccer and multipurpose field
New picnic area
Maintain existing well and pump
Restore windmill
Reforestation area .9 acres
Demolition of all existing buildings and structures on treatment plant site
Log storage area .75 acre (if needed) or reforestation area
Parking area 30 - 40 spaces
Millwright's house: recommended for demolition due to costs associated with structural upgrade. May be replaced with a new pavilion structure that includes opportunities for concessions, restrooms, and other visitor services.
GREAT HIGHWAY
MLK DRIVE
LINCOLN WAY
Richmond Sunset Treatment Plant Site
North
Scale in feet
0
100
200
400

Source: Royston Hanamoto Alley & Abey

Figure 17
Richmond Sunset Treatment Plant Site

The proposed repairs and improvements to the paddock include: replacement fencing; a replacement barn; visitor overlooks and interpretive panels; improved irrigation system, and perimeter landscaping for shade and shelter.

de Laveaga Dell and AIDS Memorial Grove (B)

In 1992, a plan was approved for restoration of the historic features of the de LaVeaga Dell and the creation of an AIDS Memorial Grove. A non-profit group was established to raise funds and do volunteer work. The area would be retained as a peaceful, pastoral area with major renovation of landscape areas.

Entry Improvements (B)

A series of improvements at various Park entries are proposed in the Park Master Plan to improve visitor information and accessibility for the disabled. Entry signs are planned for all park entries. Landscape improvements and/or disabled access improvements are planned for Stanyan and Hayes, Stanyan and Haight, 9th and Lincoln, 19th and Lincoln, Lincoln and MLK Drive, Great Highway and soccer fields, Great Highway and JFK Drive, and Fulton and Arguello.

West End (Figure 18)

The following improvements are included for project-level analysis in the EIR.

Western Park Entries (B)

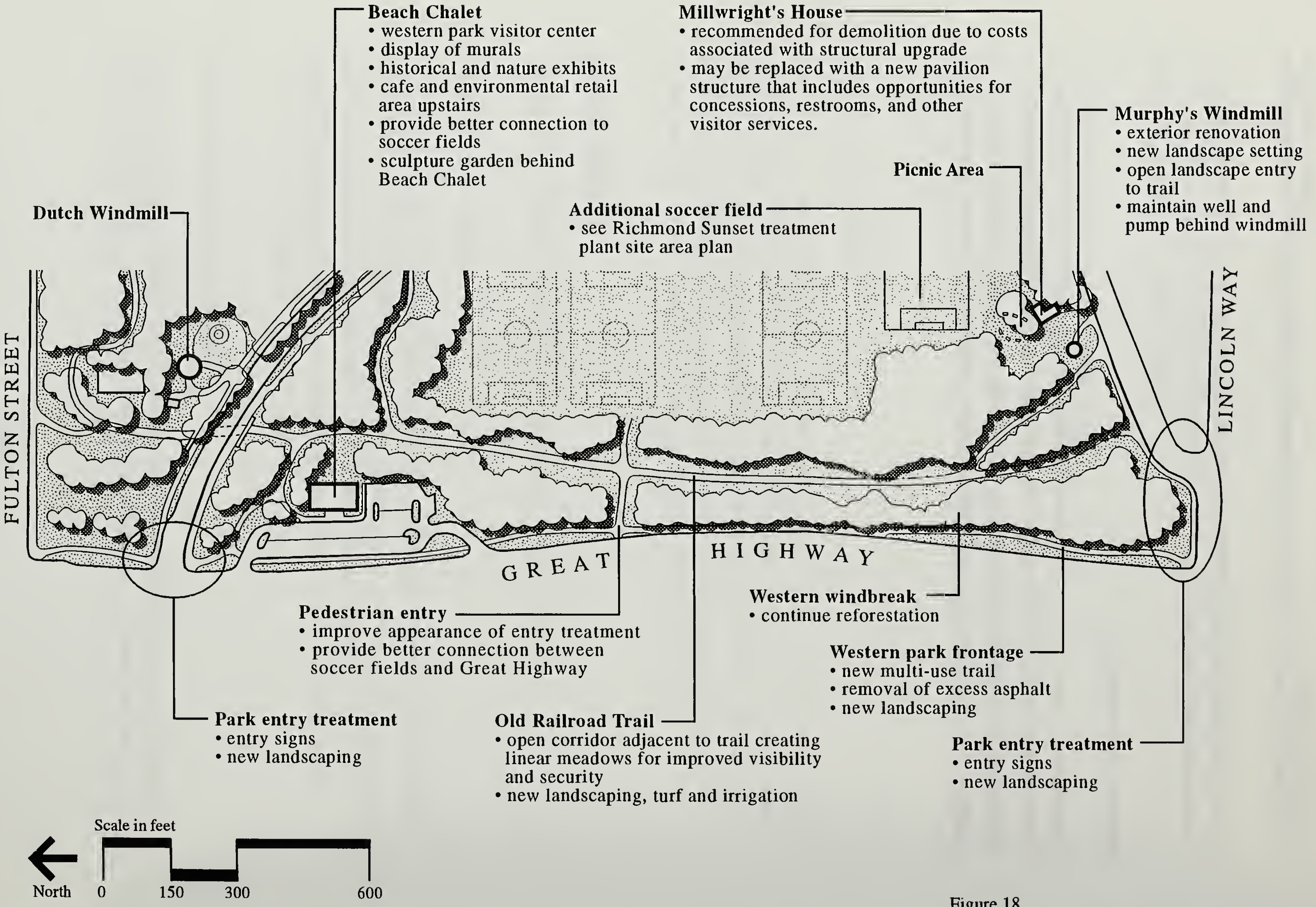
The two major entries in the western end of the Park, along the Great Highway at JFK Drive and at Lincoln Way connecting to MLK Jr. Drive,, are also proposed to receive new entry signs and landscape treatments under the Park Master Plan. These are also proposed to improve the appearance of the pedestrian entry at the Great Highway and to provide a better connection between the Great Highway and the soccer fields.

Old Railroad Trail Improvements (C)

This trail cuts across the western end of the Park through some dense growth of shrubs between the Great Highway and the soccer fields. The West End Plan calls for opening the trail corridor by pruning shrubs and improving visibility and use of the area. A series of turf meadows could be created along the trail corridor.

Western Park Frontage (C)

The relocated edge of the Great Highway has defined a new edge for the Park. Asphalt areas within the new curb alignment would be removed to return this space to parkland. The existing Great Highway multi-use trail, which runs from Lincoln Way to the San Francisco Zoological Gardens at Sloat and Great Highway, would be extended along the Park frontage to Fulton Street.



Beach Chalet
- western park visitor center
- display of murals
- historical and nature exhibits
- cafe and environmental retail area upstairs
- provide better connection to soccer fields
- sculpture garden behind Beach Chalet

Millwright's House
- recommended for demolition due to costs associated with structural upgrade
- may be replaced with a new pavilion structure that includes opportunities for concessions, restrooms, and other visitor services.

Murphy's Windmill
- exterior renovation
- new landscape setting
- open landscape entry to trail
- maintain well and pump behind windmill

Picnic Area

Dutch Windmill

Additional soccer field
- see Richmond Sunset treatment plant site area plan

Pedestrian entry
- improve appearance of entry treatment
- provide better connection between soccer fields and Great Highway

Western windbreak
- continue reforestation

Western park frontage
- new multi-use trail
- removal of excess asphalt
- new landscaping

Park entry treatment
- entry signs
- new landscaping

Old Railroad Trail
- open corridor adjacent to trail creating linear meadows for improved visibility and security
- new landscaping, turf and irrigation

Park entry treatment
- entry signs
- new landscaping

Source: Royston Hanamoto Alley & Abey

Figure 18

West End Special Area Plan

D. PROJECT POLICY RELATIONSHIPS AND APPROVAL REQUIREMENTS

DRAFT PARK MASTER PLAN OBJECTIVES AND POLICIES

The March 1995 *Golden Gate Park Draft Master Plan* (Park Master Plan) is intended to provide a framework of policies and recommended actions whose purpose is to preserve and enhance Park resources and ensure that the Park continues to serve future generations of San Francisco residents and visitors. Although a majority of Park Master Plan recommendations address physical improvements, the greatest challenge identified in the Park Master Plan is providing necessary funding for continued Park maintenance.[27]

The Park Master Plan includes eight broad objectives, each of which contains more specific policy recommendations, as summarized below.

Objective I Land Use and Activities

Ensure that land uses and activities in Golden Gate Park contribute to the mission and purpose of the Park. The activities within a designated land use zone should be appropriate to the land use purpose.

The nine broad policies in the Park Master Plan are included under Objective I. Each policy generally defines, and outlines appropriate uses for, a specific land category within the Park. Policy A calls for preservation of naturalistic parkland, including the Park's woodlands and most of its lakes, ponds, marshes, watercourses and wildlife habitat. Among appropriate uses for naturalistic parkland are nature walks, bird watching, photography and educational pursuits. Policy B calls for preservation of major meadows and lawns, and no encroachment on the areas or vistas by woodlands, specimen plantings or structures. These areas should be adaptable to various activities, including picnicking, sunbathing, informal lawn sports, unstructured recreation and public assembly.

Policy C under Objective I identifies major recreation areas designed and maintained for "specific, structured and programmed recreational uses" such as archery, soccer, baseball, football, polo, ultimate frisbee, golf, fly casting, track, lawn bowling, tennis, model boating, public assembly, and other events as defined in the Recreation and Park Commission's Permit and Reservation Policy.

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[27] San Francisco Recreation and Park Department, *Golden Gate Park Draft Master Plan*, March 1995.

Kezar Stadium is designated the Park's major youth-serving sports and general recreation facility. Policy D calls for preservation and development of Strybing Arboretum and Botanical Gardens as "a living museum of plants within the Park," by adding to plant collections, providing educational and interpretive programs, and offering a relaxing, aesthetically pleasing landscape for the public.

Policy E under Objective I calls for preservation and maintenance of indigenous oak preserves, by planting seedlings and acorns, allowing uses compatible with oak woodland management goals, and incorporating oak woodlands into Park interpretive programs. Policy F calls for maintenance and protection of special horticultural areas in the Park including the Conservatory and its gardens, the Japanese Tea Garden, the Rose Garden, the Rhododendron Dell, the Fuchsia Dell, the tree fern groves and others. Policy G identifies the Music Concourse area as an "appropriate setting for cultural activities and institutions", including the California Academy of Sciences, the de Young Museum and the Asian Art Museum. Policy H addresses the Park's necessary maintenance and operations areas, calling for minimization of their impacts on the Park. Policy I calls for the eventual phasing-out of the non-recreation activity of the recycling center operated by a non-profit agency located on Park property near Kezar Stadium.

Objective II **Landscape Preservation and Renewal**

Provide for the protection and renewal of the Park landscape.

Seven policies are included under Objective II. Policy A is to preserve the design integrity of Golden Gate Park, by maintaining the pastoral and sylvan landscape, and the form of woodlands in relation to meadows; continuing the western part of the Park as naturalistic woodland and the eastern part as "more finished;" retaining sufficient numbers of personnel for Park care; maintaining Park lakes; strictly regulating special events; and managing soil to minimize erosion and protect vegetation. Policy B is to preserve and renew the Park's forests by continuing to implement the Golden Gate Park forest management plan, and preserving indigenous oak trees.

Policy C under Objective II calls for enhancement and protection of the Park's wildlife and habitat, by managing landscape and water areas to support wildlife, and coordinating efforts to reduce the number of feral animals in the Park. Policy D calls for restoration and maintenance of Park lakes and water features by implementing measures to stabilize lake water levels and lake edges, maintain and improve water quality, and enhance wildlife habitats. Policy E calls for improvement of the Park's water supply and irrigation system, by providing consistent water pressures and volumes to irrigate the entire Park; improving the reservoir and well systems; planning for future use of reclaimed water; and installing an automated monitoring and control system for irrigation and water distribution systems.

Policy F under Objective II calls for application of sustainable landscape principles, such as using water resources efficiently, minimizing use of chemical fertilizers, pesticides and herbicides, using low-maintenance and ecologically appropriate construction materials, and recycling wood and plant waste for mulches and composting. Policy G calls for preservation and renovation of the Bison Paddock.

Objective III Park Circulation

Create and maintain a park-wide system of recreational roadways, pathways, and trails. Minimize motor vehicular traffic.

Thirteen policies are included under Objective III. Policy A calls for accessibility of Park activity areas and programs to persons with disabilities, senior citizens, and young children. Policy B calls for provision of an accessible pedestrian circulation system by providing well-designed, safe footpaths and multiple-use trails, and installing night-lighting along selected paths and activity areas. Policy C calls for a system of bikeways, bike parking, signage and other facilities providing for safe, convenient bicycle circulation to, within, and through the Park.

Policy D under Objective III addresses motor vehicle circulation to and within the Park, calling for ensured emergency and service vehicle access; placement of informational and regulatory signs at Park entrances; enforcement of parking regulations and speed limits; separation of motor vehicle roadways from other modes where possible; installation of curbs along roadways; and no new roadway construction. Policy E calls for restriction of non-Park traffic to designated throughways (The Great Highway, Crossover Drive, Park Presidio Bypass, Kezar Drive, Stanyan Street, Lincoln Way, Fulton Street, Masonic Avenue and Baker Street); screening of throughways with vegetation; and considering separation of grades where Park circulation systems cross designated roadways; and directing east-west through traffic onto perimeter roads.

Policy F under Objective III calls for removal of Park roadways that are not required for access to Park facilities and are not part of the designated throughway system; replacement of removed roadways with appropriate landscaping and recreational pathways; and redesign of intersections to remove excess pavement. Policy G calls for implementing and maintaining selected weekend and holiday road closures, without impeding access to the Music Concourse area. Policy H calls for implementation of an internal Park shuttle system coordinated with MUNI services and using accessible, energy efficient vehicles. Policy I calls for encouraging use of public transit for travel to Golden Gate Park and other parks from the city and region, by coordinating with transit providers and developing transit incentive programs.

Policy J under Objective III calls for regulation of Park roadway use and parking private tour vehicles (buses, horse drawn carriages, pedicabs, etc.). Policy K calls for regulatory measures and Park employee incentives to discourage all-day commuter parking along Park roadways, without using parking meters. Policy L calls for a comprehensive traffic safety and control program for all transportation modes, with improved striping, pavement messages and signs. Policy M requires that major traffic generators within or adjacent to the Park prepare a transportation analysis or environmental evaluation for a proposed development plan, improvement plan or major event. Where appropriate, major traffic generators must provide a transportation management plan to "prevent additional traffic congestion, user conflicts, and all-day parking by non-recreational users within Golden Gate Park and encourage alternative modes of transportation."

Objective IV **Buildings, Structures and Monuments**

Minimize the impacts that buildings and monuments have on the Park landscape, and preserve the open space of Golden Gate Park. Maintain and preserve historic buildings and structures.

Six policies are included under Objective IV. Policy A restricts new construction of non-essential buildings in the Park, including new special use facilities (museums, recreation centers, stadiums, etc.) and new statues and monuments. Policy B calls for preservation of existing historic structures and plan documents related to Park structures; and evaluation of Park buildings, structures, monuments and landscapes for historic value. Policy C calls for the modification of existing buildings to be consistent with the Park's landscape character and historic form, and to not diminish existing open space without having met specific criteria.

Policy D under Objective IV calls for the phased relocation or removal of buildings not needed for Park uses (cultural, recreational, or operations/maintenance), or conversion of such buildings to essential Park use. Policy E requires that Park maintenance structures be designed and sited to minimize visual and other impacts on the Park. Policy F calls for incorporation of energy and resource conservation systems in Park management and operation.

Objective V Recreational Uses and Facilities

Ensure that recreational uses of Golden Gate Park are appropriate to the Park environment and purpose.

Four policies are included under Objective V. Policy A calls for continued provision of regular children's recreation and supervision, especially at Mary B. Connolly Children's Playground. Policy B calls for the renovation, maintenance and operation of equestrian facilities to serve a variety of users, minimize erosion and "meet the requirements of building codes and regulations, accessibility and animal welfare." Policy C calls for restriction of off-road bicycle use to designated bicycle paths and trails; Policy D calls for restriction of skating to designated pathways and areas.

Objective VI Park Management and Security

Ensure that Park management implements adopted policies, preserves the Park's resources, and operates and maintains the Park efficiently.

Twelve policies are included under Objective VI. Policy A calls for establishment of a new professional position in the Recreation and Park Department to provide Park landscape design oversight. Policy B calls for the improvement and maintenance of Park amenities such as restrooms, drinking fountains, trash receptacles, benches, secure bicycle parking, and telephones. Policy C calls for provision of accessible visitor information through programs, tours, literature and exhibits, as well as one or more Park visitor centers to be created within existing Park buildings. Policy D calls for development and implementation of a plan for the effective use of signs to communicate information about the Park and regulations regarding its use.

Policy E under Objective VI calls for continued regulation of special events under Recreation and Park Commission policies. Policy F addresses the use of concessions services in the Park, calling for close regulation and supervision regarding location, visual design standards, litter control, and garbage disposal. Policy G addresses guidelines for acceptance of gifts and donations, calling for careful review to ensure that gifts accepted for placement in the Park would not "diminish the integrity of the basic design; creation of an endowment fund for Park restoration and maintenance; and cooperative development of additional funding opportunities. Policy H calls for recycling of park-generated materials, increasing public awareness and volunteer litter removal programs; and use of recycled materials for appropriate uses within the Park. Policy I calls for use of alternative energy Park maintenance vehicles.

Policy J under Objective VI calls for continued and expanded Park security measures, including patrols, installation of lighting in nighttime use areas, and enforcement of laws against drug use and sales and camping. Policy K addresses the mutual compatibility of Park uses and adjacent urban development, calling for cooperation between the Recreation and Park Department, the Planning Department and other City departments to review potential impacts of proposed projects to the Park. Policy L pertains to pets in the Park, calling for enforcement of leash laws and animal waste regulations, and maintenance of safe dog training and dog run areas.

Objective VII. Community Involvement and Process

Foster community participation in guiding the future of Golden Gate Park.

Three policies are included under Objective VII. Policy A calls for an open, participatory Park policy and planning process. Policy B calls for supporting the activities of a Park cooperative association, and Policy C calls for establishment of a volunteer coordinator position, encouragement of volunteer activities to do tasks and provide services that cannot be accomplished with Park staff.

PREVIOUS PLANS AND POLICIES FOR GOLDEN GATE PARK

The original plan for Golden Gate Park, developed in the 1870s by William Hammond Hall, provided a design framework that has generally guided the Park's evolution to the present day. According to that plan, the Parkland east of Strawberry Hill includes a variety of intensively cultivated areas and developed facilities, while the parkland to the west is a pastoral and woodland landscape with open meadows defined by stands of trees and enhanced by lakes.[28] Since 1899, the Park has been under the land use and planning jurisdiction of the City and County of San Francisco; prior to that time it was under the jurisdiction of the State Legislature.

In 1979, the Recreation and Park Commission adopted "Master Plan Objectives and Policies for Golden Gate Park," as a blueprint to guide changes to and maintenance of the Park's landscape. The proposed Park Master Plan builds upon the 1979 Objectives and Policies, listed below.

"1. Acknowledge Golden Gate Park's contribution to the diversity of cultural and recreational activities available to residents of San Francisco and the Bay Area; recognize the Park's importance as an American cultural resource.

2. Provide for the protection and renewal of the Park landscape.

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[28] San Francisco Recreation and Park Department, *Golden Gate Park Draft Master Plan*, March 1995, p.3-2.

3. Preserve the open space of Golden Gate Park.
4. Create and maintain a park-wide system of recreational roadways, pathways and trails. Minimize vehicular traffic.
5. Foster appropriate use of Park recreation resources."

RELATIONSHIP OF THE PARK MASTER PLAN TO *SAN FRANCISCO GENERAL PLAN* POLICIES

The *General Plan* of the City and County of San Francisco[29] (hereinafter, *San Francisco General Plan*) provides general polices and guidelines for land use decisions. As part of the approval process for the proposed Park Master Plan, the Planning Commission will make findings of consistency between the Park Master Plan and relevant *San Francisco General Plan* policies. Key policies pertaining to Golden Gate Park are found in the Recreation and Open Space Element, Western Shoreline Plan, Transportation Element, and Urban Design Element of the *San Francisco General Plan* . These policies are summarized below.

Recreation And Open Space Element

Recreation and Open Space Element Objective 2, Policy 10. The proposed Park Master Plan evaluated in this EIR responds to a specific policy in the 1987 Recreation and Open Space Element of the *San Francisco General Plan*. Objective 2 calls for the City to "Develop and maintain a diversified and balanced city-wide system of high quality public open space." According to Objective 2, Golden Gate Park is the "keystone" of the citywide public open space system because of its size and the specialized landscape elements and recreational opportunities available within it. Policy 10 under Objective 2 calls for the City to "develop a master plan for Golden Gate Park," with the overall goal being "to retain the integrity of the Park's original design while having sufficient flexibility to accommodate society's evolving needs." According to Policy 10, the Park Master Plan should include five elements: Forest Management, Circulation-Transportation Management, Land Use, Landmarks and Structures, and Landscape Design.[30]

Recreation and Open Space Element Objective 2, Policy 4 calls for the City to "Gradually eliminate non-recreational uses in parks and playgrounds and reduce automobile traffic in and around public open spaces." According to this Policy, as non-recreational public facilities located inside parks (such as libraries, fire and police stations, sewer plants and schools) become obsolete, and where it is possible to provide services elsewhere, "it should be the City's policy to eliminate non-recreational uses in parks and playgrounds, demolish the facility and return the site to open space use. If the facility can be successfully converted to recreational uses, then reuse could be an alternative to demolition." To reduce auto traffic in City open spaces, Policy 4 recommends the following methods (summarized):

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[29] City and County of San Francisco, Planning Department, *San Francisco Master Plan, Recreation and Open Space Element* adopted in 1987 and as amended to the *San Francisco General Plan* as a result of 1996 City Charter revisions (Ordinance #321-96).

[30] City and County of San Francisco, Planning Department, *San Francisco General Plan, Recreation and Open Space Element*, 1987.

- divert through traffic from open space roads onto major and secondary thoroughfares;
- reduce the capacity of roads in public open spaces and redesign them for leisurely, scenic driving;
- close off roads to autos on a part-time basis, full-time where possible, and increase week-end street closings for use by pedestrians and bicycles.
- prohibit construction of new roads and parking lots in developed public open spaces;
- encourage walking, and use of bicycles and public transit, for recreational travel.

Recreation and Open Space Element Objective 2, Policy 6 calls for the City to "Make open spaces accessible to people with special needs." According to this policy, all renovations and new facility construction should incorporate appropriate design standards to facilitate use and enjoyment by the elderly, young children and persons with disabilities.

Recreation and Open Space Element Objective 2, Policy 8 calls for the City to "Develop a citywide urban trails system that links city parks and public open space, hilltops, the waterfront and neighborhoods and ties into the regional hiking trail system."

Recreation and Open Space Element Objective 2, Policy 9 calls for the City to "“Maintain and develop the urban forest.”

Western Shoreline Plan And Coastal Zone Permit Area

The Western Shoreline Plan, which is part of the *San Francisco General Plan,* is the City’s plan for the Local Coastal Zone established by the California Coastal Commission. The portion of Golden Gate Park west of 40th Avenue is within the San Francisco Coastal Zone and is subject to Western Shoreline Plan guidelines and policies, and Coastal Zone Permit Review according to Section 330 of the *San Francisco Planning Code.*

Western Shoreline Plan Objective 3 calls for the City to "Enhance the recreational connection between Golden Gate Park and the beach frontage." Policies 1 - 4 emphasize improvement of the western end of the Park through reforestation, maintaining the area's naturalistic landscape qualities, rehabilitating the Beach Chalet, providing better public access (non-vehicular) across the Great Highway.[31]

All public projects proposed within the San Francisco Coastal Zone, except those specifically exempt, are required to apply to the San Francisco Planning Department for a Coastal Zone Permit. Within the San Francisco Coastal Zone, permit review would likely be required for construction of a residential or commercial building, structure, or project; or any alteration of a structure or building that would increase intensity of use (replacement of the Millwright's House with a Park Visitor Center is an example of a project that would require Coastal Zone review). Proposed Park lake rehabilitation projects may be subject to Coastal Zone permit review, if defined as a "change in the intensity of use of a body of water, or stream, or access thereto". Among projects exempt from Coastal Zone Permit Review are (summarized):

- Most minor repair or maintenance activities;
- Installation or replacement of a necessary utility connection between an existing service facility and approved development;
- Recreation and Park tree trimming, reforestation and support services, landscaping improvements, vegetation removal and seasonal planting, replacement planting, maintenance, and other Park landscaping and planting improvements;
- Recreation and Park Department road maintenance, repairs, facilities and street lighting, and road and circulation improvements as proposed in the Golden Gate Park Transportation Management Pan;
- Recreation and Park Department play structures, maintenance and other activities that require no building permit[32]

Transportation Element

The Transportation Element of the *San Francisco General Plan* is concerned with meeting the travel needs of residents and visitors and improving the environment. Objectives and policies focus on mass transit, vehicle circulation, pedestrian circulation, bicycles, and a citywide parking plan. Specific design recommendations for several Park roadways (Cross-Over Drive, John F.

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[31] City and County of San Francisco, Planning Department, *San Francisco General Plan, Western Shoreline Plan,* 1987.

[32] City and County of San Francisco, Planning Department, *San Francisco Planning Code,* Section 330.1.

Kennedy Drive, Kezar Drive) and nearby streets (Frederick Street, Great Highway and 19th Avenue) are provided in the Vehicle Circulation Plan of the Transportation Element.

Transportation Element Objective 5, Policy 4 Objective 5, Vehicle Circulation, calls for the City to "Establish a thoroughfares system in which the function and design of each street are consistent with the character and use of adjacent land." Policy 4 under Objective 5 recommends measures to "Discourage non-recreational and non-local travel in and around parks and along the shoreline recreation areas." Streets adjacent to or within parks and along the shoreline "should to the greatest extent possible be designed and controlled to reduce their use as throughways. They should offer the opportunity for leisurely, scenic driving consistent with pedestrian, equestrian and bicycle movements along and across the street."

Transportation Element Objective 8, Policy 4 calls for the City to "Provide for the safe and convenient use of the bicycle as a means of transportation and recreation." Also, according to Policy 2 under Objective 8, "Bikeways should connect and incorporate waterfront areas of San Francisco, scenic view areas and major parks. Golden Gate Park, in particular, is a prime locale for bicycling."[33]

Urban Design Element

Objectives and polices in the Urban Design Element of the *San Francisco General Plan* relevant to the Park Master Plan are relatively general, and include the following:

Urban Design Element Objective 1, Policy 1: Recognize and protect major views in the city, with particular attention to those of open space and water.

Urban Design Element Objective 1, Policy 4: Protect and promote large-scale landscaping and open space that define districts and topography.

Urban Design Element Objective 2, Policy 2: Limit improvements in open spaces having an established sense of nature to those that are necessary, and unlikely to detract from the primary values of the open space.

Urban Design Element Objective 2, Policy 4: Preserve notable landmarks and areas of historic, architectural or aesthetic value, and promote the preservation of other buildings and features that provide continuity with past development.

Urban Design Element Objective 3, Policy 4: Promote building forms that will respect and improve the integrity of open spaces and other public areas.

Urban Design Element Objective 4, Policy 8: Provide convenient access to a variety of recreation opportunities.[34]

CITY OF SAN FRANCISCO DRAFT GROUND WATER MASTER PLAN AND DRAFT RECYCLED WATER MASTER PLAN POLICIES RELEVANT TO GOLDEN GATE PARK

To comply with Article 22 of the *San Francisco Public Works Code*, the City and County of San Francisco has drafted a Recycled Water Master Plan (RWMP)[35] and a Groundwater Master Plan (GWMP)[36]. The shared objectives of both plans are to:

- Maximize the use of recycled water within the City at a reasonable cost;
- Improve water supply reliability for the City, particularly during drought periods;
- Improve reliability and expand the fire protection system within the City;
- Preserve the high quality Hetch Hetchy system water supply for potable uses; and
- Coordinate management of the City's water supply sources, including surface water, groundwater and recycled water.[37]

During development of the RWMP and GWMP, it was determined that landscape irrigation is the main source of demand for non-potable water. Golden Gate Park is identified as one of the major non-potable water users in the City that could be potentially served by recycled water.[38] Potential environmental effects of using recycled water in Golden Gate Park and other parts of the city are evaluated in the *San Francisco Recycled Water Master Plan and Groundwater Master Plan Environmental Impact Report.* For the purposes of this EIR, those potential environmental effects

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[33] City and County of San Francisco, Planning Department, *San Francisco General Plan, Transportation Element*, July 1995.

[34] City and County of San Francisco, Planning Department, *San Francisco General Plan, Urban Design Element*, 1987.

[35] Montgomery Watson, *Water Recycling Master Plan*, prepared for the San Francisco Department of Public Works, October 1992, updated February 1995.

[36] *Draft Groundwater Master Plan*, prepared for the San Francisco Water Department, 1994.

[37] City and County of San Francisco, Planning Department, *San Francisco Recycled Water Master Plan and Groundwater Master Plan Environmental Impact Report*, DEIR, November 11, 1996.

[38] ibid.

are assumed to result from implementation of the RWMP and the GWMP, rather than the Park Master Plan. Reference is made to the impact discussion in the Recycled Water and Groundwater Master Plan EIR for a complete discussion of impacts associated with the use of recycled water.

RELEVANT PLANS AND POLICIES OF OTHER AGENCIES

Water Quality Control Plan For The San Francisco Bay Basin ("Basin Plan")

The California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) is responsible for water quality planning, permitting and enforcement activities in the Bay Area, including the development and implementation of the "Basin Plan". Under the California Water Code, the RWQCB is empowered to regulate discharges of storm water and wastewater, including recycled water, within its region. Actions proposed as part of the Park Master Plan that could require permits from the RWQCB include the use of recycled water for landscape irrigation and any substantial changes in the existing storm drainage and groundwater recharge systems. RWQCB requirements for using recycled water in the Park would potentially be established as part of the overall RWMP permitting process.

Bay Area Air Quality Plan

Bay Area Air Quality Management District (BAAQMD) is responsible for implementing the Bay Area Air Quality Plan, which was jointly prepared by the Association of Bay Area Governments (ABAG), the Metropolitan Transportation Commission (MTC), and the BAAQMD. Projects and construction activities associated with the Park Master Plan actions that could require review by BAAQMD for consistency with federal and state air quality standards include the proposed underground water reservoir and pump station.

PARK MASTER PLAN APPROVAL REQUIREMENTS

This EIR will undergo a public comment period as noted on the cover, including a public hearing before the San Francisco City Planning Commission on the Draft EIR. Following the public comment period, responses to written and oral comments will be prepared and published in a Draft Summary of Comments and Responses document. The EIR will be revised as appropriate and presented to the Planning Commission for certification as to accuracy, objectivity and completeness. Approval or adoption of the proposed Park Master Plan may not occur before the Final EIR is certified.

The proposed Golden Gate Park Master Plan would require approval by the Recreation and Park Commission, as well as a finding by the Planning Commission that the plan is consistent with the San Francisco General Plan. Approval by the San Francisco Board of Supervisors would be required for certain specific projects and actions, including allocation of funds and construction of new buildings proposed in the Park (e.g. expansion of the tennis club and golf course clubhouse facilities).

Individual projects or recommendations contained in the Park Master Plan would be reviewed by the Recreation and Park Commission for approval of plans and specifications and award of contracts. Some projects (especially lakes reconstruction) could also be subject to approvals from one or more of the agencies and approval bodies listed in Table 9 below, such as the Army Corps of Engineers and Fish and Wildlife Service. Some projects included in the Park Master Plan have already received approval, and are incorporated only to provide information needed for analysis of cumulative impacts.

TABLE 9: PARK MASTER PLAN APPROVALS

AGENCY	APPROVAL OR CONSULTATION
City of San Francisco:	
Recreation and Park Commission	Approval of the Master Plan, approval of plans and specifications, award of contracts
Planning Department	Preparation and certification of environmental review document, General Plan referral, Coastal Zone permit review
Landmarks Board	Certificate of Appropriateness - historic structures
Arts Commission	Approval of design of public structures and buildings, restoration of statues and monuments
Board of Supervisors	Funding appropriations, approval of construction in Golden Gate Park
Department of Building Inspection	Approval of plans and specifications for building permits; issuance of permits as required (building, electric, plumbing, grading)
Department of Public Health	Approval of replacement wells
Fire Department	Approval of plans and specifications for issuance of building permits
Parking and Traffic Department	Approval of roadway modifications, construction truck routes, and bus stop relocations
Public Utilities Commission	Approval of design of wells, reservoirs, and pumps as they pertain to water management funding appropriations and maintenance as appropriate
State of California:	
Department of Fish and Game	Projects which may effect listed species or sensitive habitat
Regional Water Quality Control Board	Permit review for discharges from lakes and storm water and waste water discharge
Federal Government:	
Army Corps of Engineers	As required regarding projects affecting lakes, waters of the U.S. watercourses or wetlands; Nationwide permit
Fish and Wildlife Service	Projects which may affect listed species or sensitive habitat

E. PROJECT SCHEDULE AND FUNDING

While it is intended that the policies and actions described in the March 1995 *Golden Gate Park Draft Master Plan* would be implemented within a ten- to 15-year time frame, the primary funding secured at this time is from Golden Gate Park Infrastructure Bonds, approved by City voters in 1992. Other funding sources include corporate and foundation grants, gifts, and federal grants for visitor facilities (Beach Chalet) and trail improvements under the Intermodal Surface Transportation Efficiency Act (ISTEA). Lila Wallace Readers Digest grants would help fund the proposed west end projects, including entrance enhancements, garden improvements, and path refurbishing; multi-use paths; and internship programs. The Arboretum Society would raise funds for the County Fair Building and Arboretum Special Area Plan projects. Other potential funding sources include The Friends of Recreation and Parks/Golden Gate Park Conservancy, San Francisco Garden Club, and other non-profits. The conservancy is raising matching funds for the Lila Wallace grant.

Because funding sources have not yet been identified for ongoing maintenance needs as well as some proposed Park Master Plan projects, the Master Plan contains a Park Funding element that recommends the following:

- Work with the Mayor's office and the Board of Supervisors to ensure continued support for Golden Gate Park from the City's General Fund.
- Seek new public funding sources that can be used for ongoing Park maintenance such as a dedicated new tax.
- Seek additional funding from private sector sources by establishing a nonprofit conservancy organization for Golden Gate Park to significantly increase private sector support.[39]

The Master Plan also recommends expanding citizen involvement through continuing task forces, working groups, and volunteer opportunities.

PROJECTS FUNDED UNDER THE 1992 GOLDEN GATE PARK INFRASTRUCTURE BOND PROGRAM

The Golden Gate Park Infrastructure Bond measure called for repair or replacement of the major infrastructure systems within the Park. The Park Infrastructure Bond projects are included within the Master Plan, primarily under the Utilities and Infrastructure element. These projects are scheduled for implementation over a ten-year period, and some were previously determined to be exempt from environmental review under CEQA (see Tables 1 through 8 for exemption status). Projects slated to be implemented through the infrastructure program are as follows:

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[39] San Francisco Recreation and Park Department, *Golden Gate Park Draft Master Plan*, March 1995, p.1-9.

Water supply and distribution system:

- Replacement of substandard and inadequate water mains with new irrigation and domestic mains. The new mains will have the capacity to use reclaimed water in the future.
- Construction of a new underground reservoir to replace inadequate and substandard reservoirs.
- Installation of a new central pumping station.
- Replacement of inadequate and substandard irrigation systems with new automatic systems to eliminate use of domestic water, conserve water and improve irrigation.
- Installation of replacement wells.

Lakes and water features:

- Restoration of several of the Park's lakes, including sealing to prevent leakage, stabilization of shorelines and improvement of water quality.

Utility replacement:

- Replacement of defective sewers and repair of drains.
- Renovation of inadequate electrical equipment.
- Replacement of direct burial lines with new street lighting conduits and fixtures to improve pedestrian and roadway safety.

Rehabilitation of existing Park features:

- Modifications to meet the requirements of the Americans with Disabilities Act (ADA).
- Restroom rehabilitation.
- Pathway repair.
- Rehabilitation of Park entryways.
- Erosion control.
- Repair of pedestrian tunnels, bridges, fences and gates.
- Continuation of the forestry program.

MASTER PLAN IMPLEMENTATION SCHEDULE

The proposed Park Master Plan would be implemented in phases over several years, as shown in Appendix B.

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III. ENVIRONMENTAL SETTING

A. LAND USE, ZONING AND VISUAL QUALITY

LOCAL AND REGIONAL SETTING

Golden Gate Park occupies 1,017 acres (including the Panhandle) in the northwest part of the San Francisco Peninsula, and is surrounded on the north, east and south by urban development. To the west of the Park are the Great Highway, Ocean Beach (part of Golden Gate National Recreation Area) and the Pacific Ocean. U.S. Highway 1, which crosses the Park at 19th Avenue/Crossover Drive/Park Presidio, provides access to the Golden Gate Bridge to the north and Peninsula communities to the south. Other regional freeways serving the Park are U.S. Route 101 and Interstate 80 to the east. Access between the regional freeways and the Park is provided by several arterials, including Great Highway; Lincoln Way; Sunset Boulevard; Fulton, Oak, Fell, and Stanyan Streets; and Seventh, Ninth, 19th, and 25th Avenues. The Park is generally rectangular in shape, about 1/2 mile wide from north to south and 3-1/2 miles long east to west.

Generalized land use in the vicinity of Golden Gate Park is shown in Figure 19. The Richmond and Sunset Districts, which adjoin the main Park on the north and south respectively, are predominantly single-family and moderate-density multi-family residential areas. Schools, churches, hospitals and neighborhood-serving retail uses are also located in these districts (particularly Ninth Street and Irving Street east of 27th Avenue). The University of California Medical School, situated on a hillside in the Inner Sunset District, is visible from the Park's eastern end. St. Mary's Medical Center, the University of San Francisco, and St. Ignatius Church are important features in the vicinity of the main Park's northeastern end. Most of the buildings in these neighborhoods are three stories or less. To the east of the main Park and along the Panhandle is the Haight-Ashbury District, which contains mixed residential and commercial uses, with commercial uses concentrated along Haight and Stanyan Streets. Residential uses are more dense than in the Richmond and Sunset Districts, with a higher ratio of apartment dwellings to single-family dwellings. Most buildings are three stories or less in height.

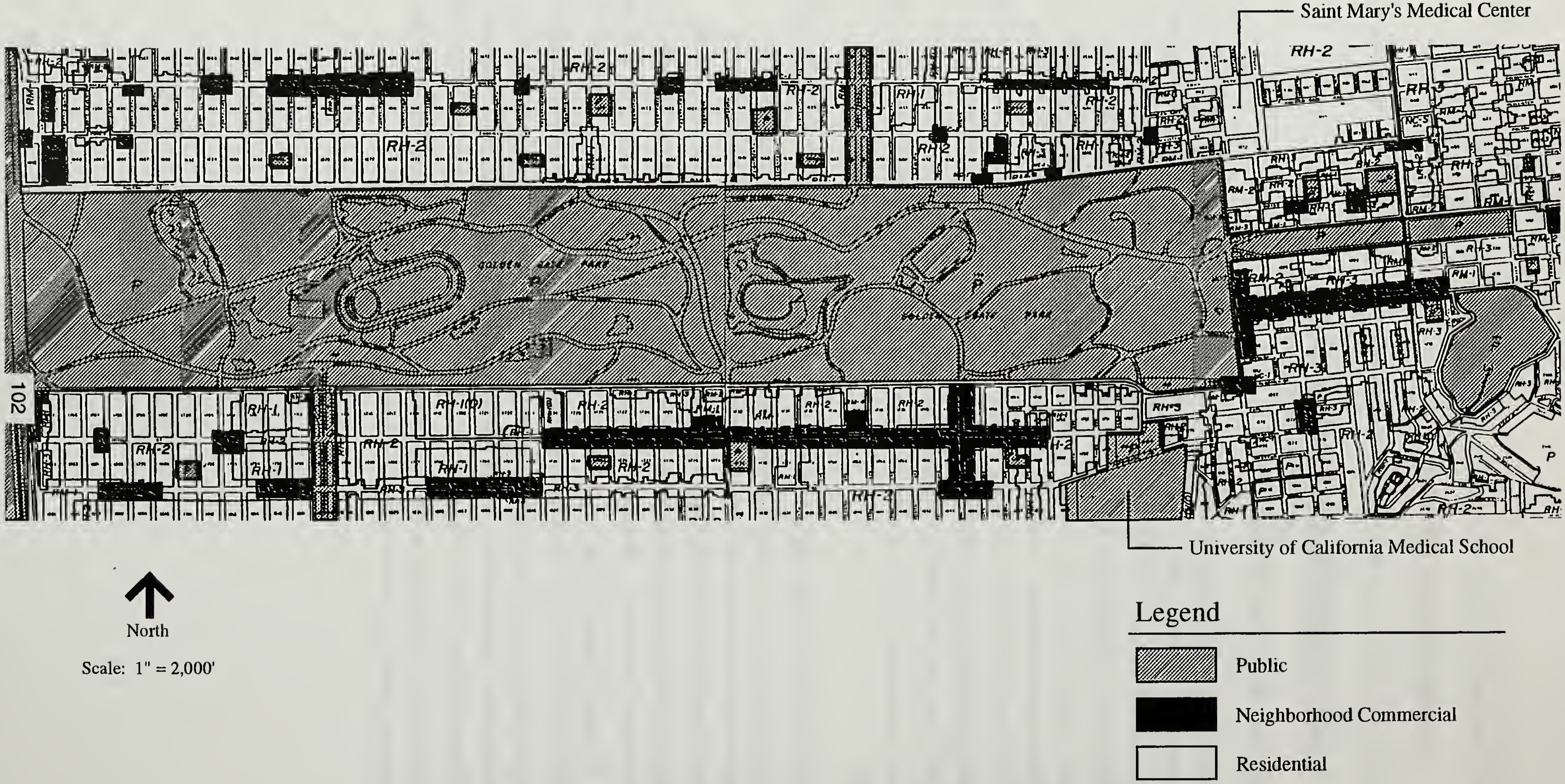

Saint Mary's Medical Center
University of California Medical School
North
Scale: 1" = 2,000'
Legend
▨ Public
■ Neighborhood Commercial
☐ Residential
RH-2
RH-1
RH-3
RH-1(D)
GOLDEN GATE PARK
P

Figure 19

Generalized Land Use
Golden Gate Park Vicinity

EXISTING PARK LAND USE, ZONING AND VISUAL QUALITY

Golden Gate Park is within a P (Public Use) zoning district and an OS (Open Space) height and bulk district. Permitted uses in a P zoning district include public structures of the city and other governmental agencies. No building, structure or addition can be permitted within a P district unless it is in conformity with the *San Francisco General Plan* and is approved by the Recreation and Park Commission and the Board of Supervisors. There are no specific height and bulk limits in the OS height and bulk district. Height and bulk of buildings and structures are determined in accordance with the objectives, principles and policies of the *San Francisco General Plan.*

Golden Gate Park is a nationally renowned and locally significant recreational and visual resource. Although a majority of the Park consists of gardens, fields, forests, ponds and lakes, it also contains numerous monuments and buildings, nearly fifteen miles of vehicular roadways, several parking lots, and many paths and other paved areas. The Park Master Plan designates seven land use zones: Naturalistic Parkland, Major Meadows and Lawns, Major Recreational Areas, Indigenous Oak Preserves, Special Horticultural Areas, Strybing Arboretum and Botanical Gardens, Music Concourse Area, Maintenance/Operations Areas, and Vehicle Circulation and Parking (Figure 20)

Golden Gate Park is an estimated 44.3 million square feet in area. A tabulation of estimated existing building square footage and paved areas in the Park is given in Table 10. Existing building area in Golden Gate Park totals approximately 362,600 gross square feet, excluding the non-Park buildings in the Music Concourse area (the de Young Museum, Asian Art Museum, Academy of Sciences, Steinhart Aquarium). Together, the non-Park buildings in the Music Concourse area comprise about 324,300 gross square feet, for a total Park and non-Park building area of approximately 686,900 gross square feet.

Most of the Park's permanent structures are located in the area east of Crossover Drive, including: the Conservatory of Flowers; Park Headquarters (including McLaren Lodge); the Music Concourse and Spreckels Temple of Music; the Japanese Tea Garden; the tennis courts and clubhouse; lawn bowling greens and clubhouse; Strybing Arboretum and Botanical Gardens; the Sharon Building, carousel, and Children's Playground; Kezar Stadium and Pavilion; the Park Police and Emergency Aid Stations; the handball courts; Stow Lake Boat House; the Pioneer Log

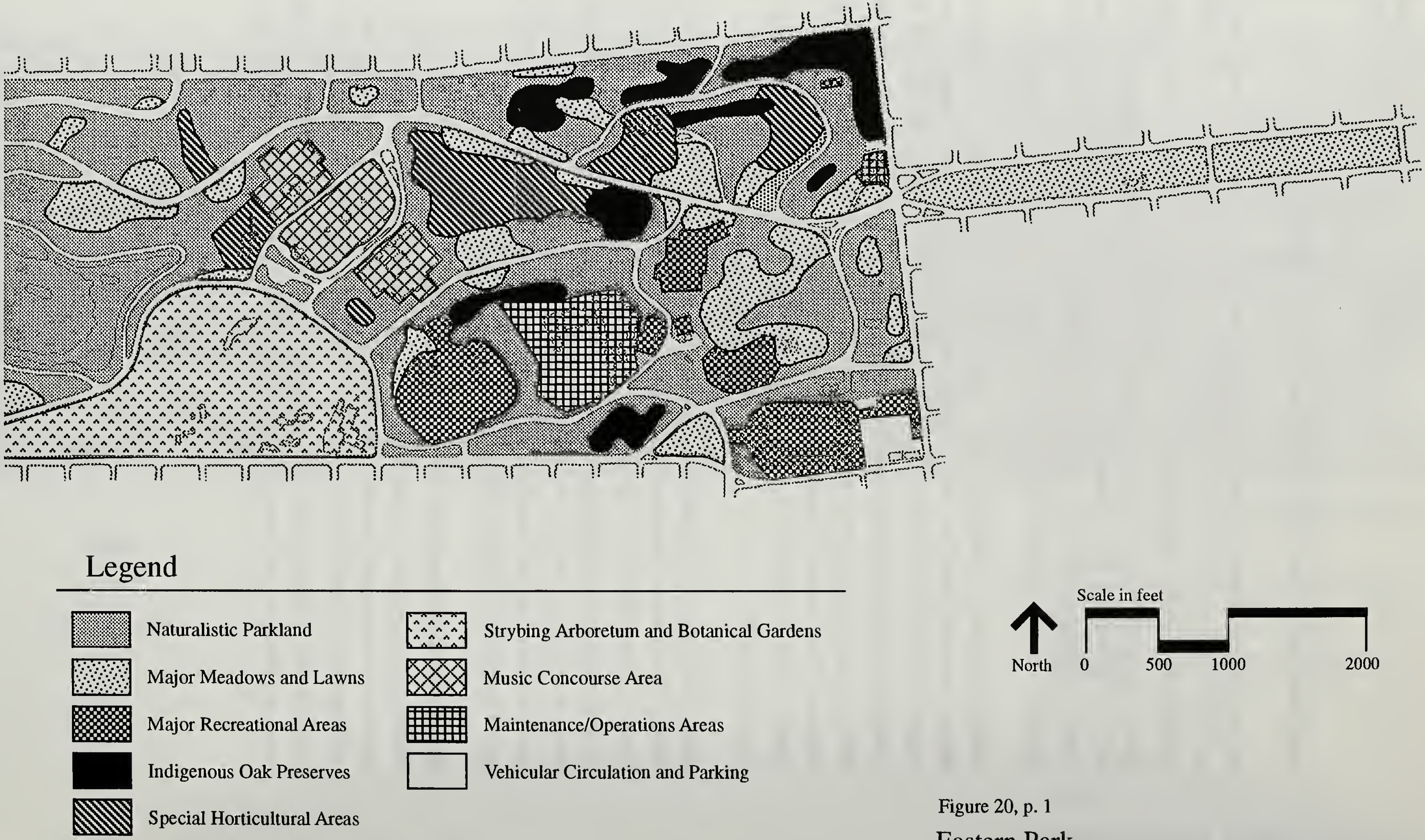
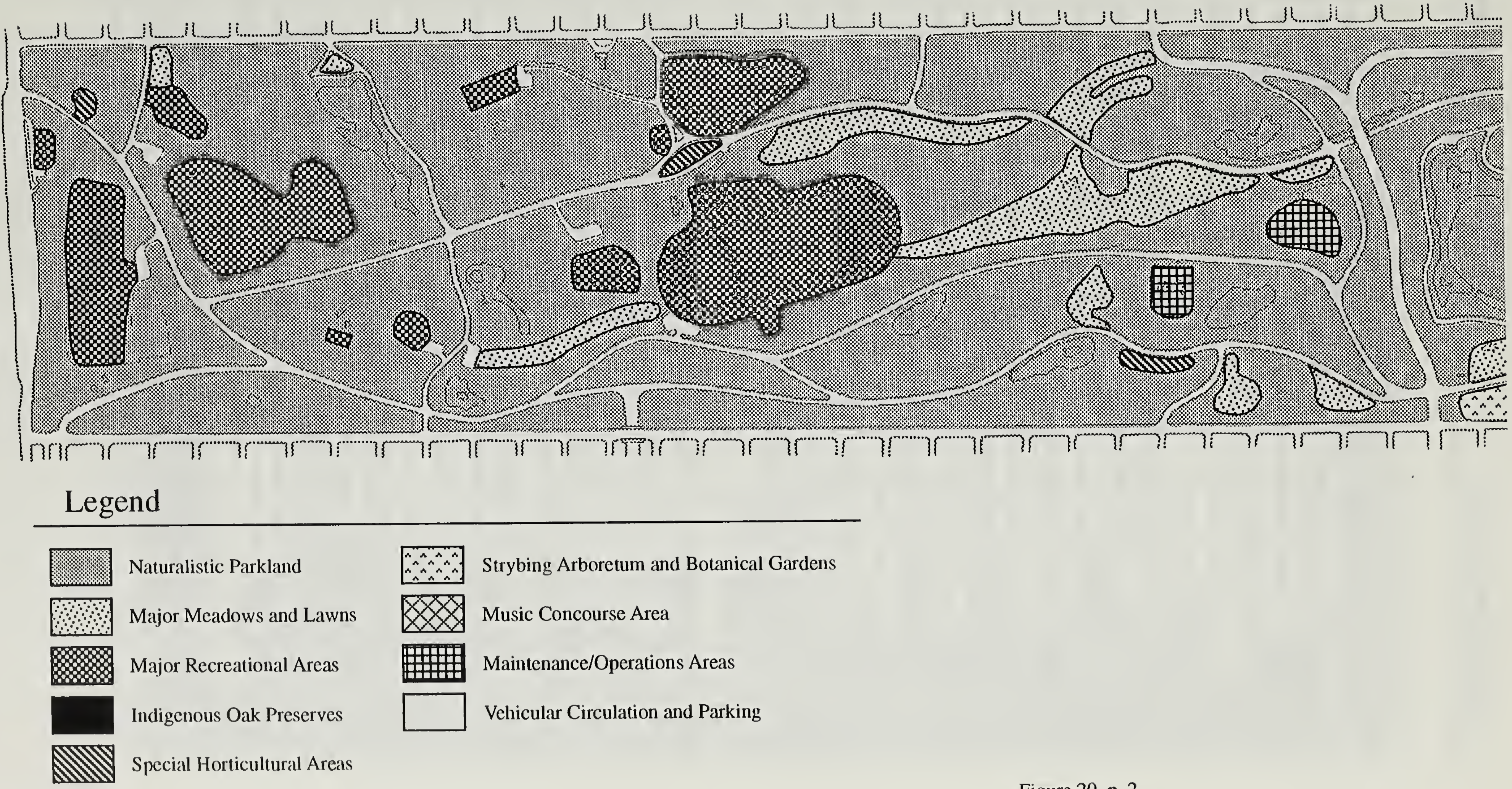


Figure 20, p. 1

Eastern Park

Park Master Plan Land Use Zones

Source: Royston Hanamoto Alley & Abey


Legend
Naturalistic Parkland
Major Meadows and Lawns
Major Recreational Areas
Indigenous Oak Preserves
Special Horticultural Areas
Strybing Arboretum and Botanical Gardens
Music Concourse Area
Maintenance/Operations Areas
Vehicular Circulation and Parking

Source: Royston Hanamoto Alley & Abey

Figure 20, p. 2

Western Park

Park Master Plan Land Use Zones

TABLE 10: EXISTING BUILDING AREAS IN GOLDEN GATE PARK

	Main Building	**Restroom**
Facility Name	**Area (sq. ft.)**	**Area (sq. ft.)**
Anglers Lodge	1,700	in building
Beach Chalet	9,000	in building
Big Rec		1,000
Carousel	3,800	
Children's Playground		1,750
Chinese Pavilion	400	
Conservatory	27,900	300
Corporation Yard	35,170	in building
County Fair Building	26,183	in building
Park Emergency Hospital	2,733	in building
Equestrian Center	38,000	
Golf Clubhouse	600	in building
Horseshoe Area		400
Horticultural Library	2,370	
Japanese Tea Garden	2,600	600
Kezar Pavilion	37,500	in building
Kezar Stadium		3,600
Lawn Bowling Clubhouse	600	
McLaren Lodge	11,500	in building
Model Yacht Club	2,250	in building
Mothers' Meadow		800
Murphy's Mill	700	
Millwright's House	2,200	in building
Music Concourse Food Service	300	
Music Concourse Maintenance	320	
North (Dutch) Windmill	750	
North Lake		875
North Training Quarters		1,250
Nursery & Greenhouse	23,000	
Panhandle		600
Park Police Stables	11,800	
Pioneer Log Cabin	1,500	
Portals of the Past	75	
Powell Street RR Station	768	
Rose Garden		625
Senior Center	7,600	
Sewage Treatment Plant	(58,280) demolished	
Sharon Building	9,225	
Speedway Meadow		1,000
Spreckels Temple of Music	5,191	600
Stanyan/Page		600
Stow Lake Boathouse	3,500	in building
Strybing Arboretum Bldgs	12,500	600
Soccer Field/Beach Chalet		2,500
South Training Quarters		1,250
Tennis Clubhouse	1,500	
Urban Forestry Center	3,100	
West End Maintenance		1,300
TOTALS	342,915	19,650

*Because they are not park facilities, the Academy of Sciences/Aquarium (approx. 201,200 sf) and the de Young/Asian Art Museums (approx. 123,100 sf) are not included.

Source: San Francisco Recreation and Park Department, 1995.

Cabin; and the Park maintenance yard and nursery. Temporary storage facilities (dumpsters) and a mobile office are part of the Haight-Ashbury Neighborhood Recycling Center. Landscaping in the eastern portion of the Park is designed with meadows, dells, flower gardens, groves, and two waterfalls (Rainbow and Huntington). Stands of trees include native oaks, mixed conifers, redwoods, pines, eucalyptus and other broadleaf evergreens. Lakes in the eastern portion of the Park include Alvord, Stow, and Quarry (Lily Pond).

The western portion of the Park contains most of its larger meadows, lakes and relatively naturalistic areas, as well as facilities for activities and sports such as fly casting, model yachts, horseback riding, archery, golf, rugby, polo, soccer and track. Lakes in the area include Spreckels, Lloyd, Mallard, Metson, Elk Glen, and the Chain of Lakes (North, Middle and South). Other features and facilities in the western portion of the Park include the compost area, the Urban Forestry Center, the Senior Center, the Bison Paddock, the Beach Chalet, Dutch and Murphy's windmills. The western edge of the Park is enclosed with dense vegetation that blocks views of the ocean from within the Park and views of open spaces from outside the Park.

The Park circulation system includes roadways that provide internal access to attractions and recreation areas; thoroughfares that carry commuter traffic; and paths for pedestrians, skaters, bicycle riders, hikers and horseback riders. One main off-road asphalt bicycle path runs the length of the Park in an east-west direction.

From outside vantage points such as U. C. Medical School, Golden Gate Park resembles a strip of plush green vegetation set within a nearly continuous grid pattern of streets and buildings. From inside, however, the Park offers a visual collage that varies from place to place because of its diversity of water bodies, landscapes, buildings and activity areas. With its non-linear plan, rolling topography and internal spaces bounded by stands of dense trees and vegetation, the Park generally offers intimate rather than panoramic views. Notable exceptions are views from Strawberry Hill of City hills and neighborhoods, views from the west end of the Pacific Ocean, and Park meadow views such as from Speedway and Sharon Meadows.

The western part of Golden Gate Park is more pastoral and sylvan than the eastern part, and has a garden-like "naturalness" achieved through irrigation and landscape maintenance. The picturesque qualities of the Park are affected by naturally aging forests, fallen trees and limbs, overgrown lakes with eroded slopes, deteriorated structures (fences), and illegal dumping of household materials.

Park buildings and structures are varied in function, age, architectural style and construction. Some, such as the light-brown, concrete County Fair building, are relatively nondescript. Others, such as the Dutch windmills, are unique within the region. Many of the Park's activity areas, such as the Japanese Tea Garden, Stow Lake, Children's Playground, or Strybing Arboretum and Botanical Gardens, have their own special visual qualities. Most noteworthy, although visibly damaged and deteriorating, is the domed, white wood-and-glass Conservatory with its plant collection. The structures flanking the Music Concourse are unified by the symmetrical oval plan accented by fountains and headed by the Francis Scott Key monument at one end, and the restored band shell (Spreckels Temple of Music) at the other. The Park's two windmills are in marked contrast to one another: North (Dutch) Windmill stands whole above the trees while Murphy's Mill (south), without its sails, appears dilapidated and in disrepair. Among the Park's other distinguished structures are the Sharon Building and McLaren Lodge with their sandstone facade and Victorian Romanesque architecture.

EXISTING NON-CONFORMING USES

As noted above, no building, structure or addition can be permitted within a P district unless it is in conformity with the *San Francisco General Plan.* Policy 4 under Objective 2 of the *San Francisco General Plan* calls for the City to "Gradually eliminate non-recreational uses in Parks and playgrounds and reduce automobile traffic in and around public open spaces." According to this Policy, as non-recreational public facilities located inside Parks (such as libraries, fire and police stations, sewer plants and schools) become obsolete, and where it is possible to provide services elsewhere, "it should be the City's policy to eliminate non-recreational uses in Parks and playgrounds, demolish the facility and return the site to open space use. If the facility can be successfully converted to recreational uses, then reuse could be an alternative to demolition." [1]

Existing non-recreational uses in Golden Gate Park include the Haight-Ashbury Neighborhood Council (HANC) Recycling Center near Kezar Stadium, the museums in the Music Concourse area, the Park police station near Kezar Stadium and the residential use of Millwright's House. The Richmond-Sunset sewage treatment plant was demolished in 1996, and the Millwright's House is proposed to be demolished as part of the Park Master Plan. The other existing non-recreational uses are not proposed for elimination under the draft Park Master Plan, with the following exception.

The Haight-Ashbury Neighborhood Council (HANC) Recycling Center was recognized as an existing use in the Kezar Master Plan, adopted April, 1988.[2] However, according to the

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[1] City and County of San Francisco, Planning Department, *San Francisco General Plan, Recreation and Open Space Element*, 1987.

[2] City and County of San Francisco, Planning Department, *Negative Declaration, Kezar Corner Master Plan,* Adopted April 6, 1988.

Recreation and Park Commission, the non-recreational serving activities of the Recycling Center should eventually be phased out.[3] The HANC non-profit multi-material recycling center (buyback and drop-off) is located on Park property at 780 Frederick Street at Arguello. The center is open 360 days a year from 9 a.m. to 4 p.m. and has been in operation since 1979.

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[3] City and County of San Francisco, Recreation and Park Commission, Resolution No. 16958, September 21, 1994.

B. POPULATION

Annual use of Golden Gate Park is estimated to average between eleven and fifteen million visitors. It is estimated that one half of the visits are from San Francisco residents, one quarter from the Bay Area residents, and one quarter from persons outside the Bay Area.

The Park employed 99 full-time and 18 part-time gardeners, foresters, nursery specialists, equipment operators, custodians, maintenance persons and supervisors and security staff for Golden Gate Park at the time the Park Master Plan was developed in 1994. The maintenance yard is home base to about 100 additional Recreation and Park Department employees and McLaren Lodge has about 50 Recreation and Park employees, serving as the administrative office department. Table 11 shows the breakdown of landscape and custodial staff.

Table 11: Landscape and Custodial Maintenance

Area and Position	Park Staffing 1977	Park Staffing 1994
Gardeners	93	79
Supervisors	15	7
Custodians	18	9
Nursery Specialists	7	4
Total Park Maintenance Staff	133	99

In addition to Park staff, the concessions and visitor attraction facilities (Academy of Sciences, de Young Museum, Tea Garden, Arboretum, County Fair Building, Conservatory, Sharon Building Senior Center) each have staff and docents/volunteers, estimated to be about 450 persons.[1] The conservatory has gardeners and occasional garden club volunteers.

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[1] Elaine Molinare, San Francisco Recreation and Park Department, telephone conversation, March 1, 1997.

C. TRANSPORTATION

The main body of Golden Gate Park is bounded by the Great Highway to the west, Fulton Street to the north, Stanyan Street to the east, and Lincoln Way to the south. The study area for transportation purposes is defined in Figure 21. Traffic, transit, and parking conditions within the Park and up to three blocks outside of the above limits are described below.

STUDY AREA ROADWAYS AND INTERSECTIONS

The following sections describe the study area roadways and intersections, and existing weekday and weekend peak hour levels of service for critical intersections in and near the Park.

Roadways

Regional access to Golden Gate Park is provided by US Highway 1 (US 1), US Highway 101 (US 101), Interstate 80 (I-80), and Interstate 280 (I-280). Of these four highways, only US 1 provides direct access to the Park. US 1 bisects the west and east sides of the Park and is designated as Crossover Drive/Park Presidio Bypass through the Park. North of the Park the highway is designated as Park Presidio Boulevard and south of the Park the highway is designated as 19th Avenue.

US 101, I-80 and I-280 provide indirect regional access to the Park. Park visitors using US 101 from the south generally exit the highway about two to three miles east of the Park. Motorists from US 101 to the north typically exit the highway at US 1 (Park Presidio) just over two miles north of the Park.

Interstate 80 provides access from the East Bay. The interstate designation ends in downtown San Francisco near 8th Street, where the freeway turns southerly and is designated as US 101. Interstate 280 provides access from the west side of the Peninsula and the South Bay. Park visitors using I-280 typically exit the freeway at US 1 (19th Avenue) about four miles south of the Park.

Table 12 summarizes the public street network that provides primary access to the Park. All of the public roadways studied, with the exception of the Fell Street/Oak Street one-way couplet, are two-way roadways. All of the roadways identified as Major Arterials in Table 12 are also designated as Major Arterials in the City's *Congestion Management Program.*[1]

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[1] San Francisco County Transportation Authority, *1995 San Francisco Congestion Management Program*, 1995.

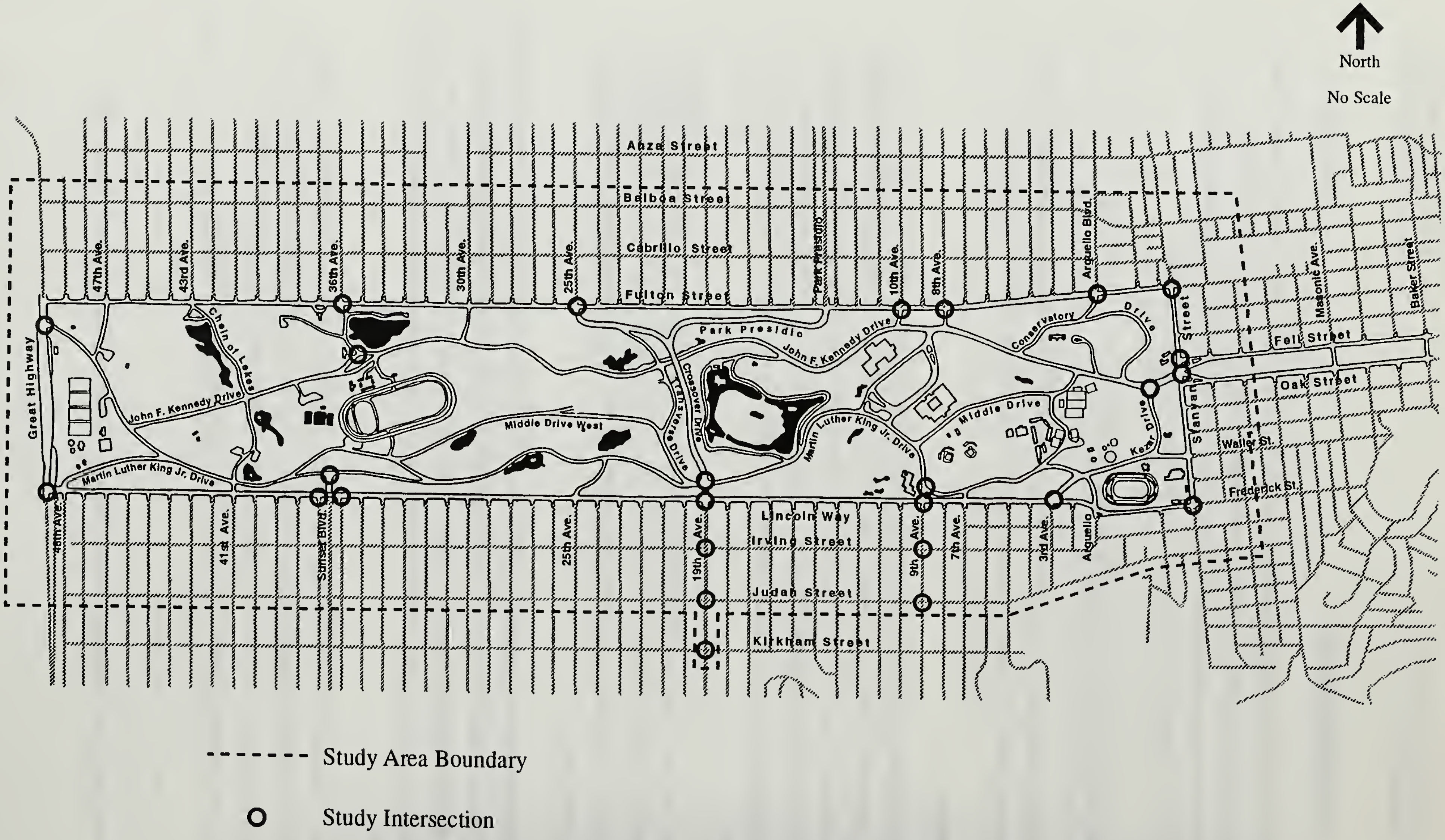

Figure 21

Transportation Study Area

Table 12: Public Street Descriptions

Roadway	General Plan Designation[2]	Through Lanes	Remarks
Crossover Drive/Park Presidio Bypass	Major Arterial MTS Street	6	US 1
Fell Street/Oak Street Couplet	Major Arterial MTS Street	6	
Fulton Street (east of Park Presidio)	Major Arterial Secondary Transit Street	4	
Fulton Street (west of Park Presidio)	Secondary Arterial Secondary Transit Street	4	
Great Highway	Recreational Street MTS Recreational Street Bicycle Route	4	
Kezar Drive	Major Arterial MTS Street Bicycle Route	4	
Lincoln Way (east of 19th Ave.)	Major Arterial MTS Street Secondary Transit Street	4/5	Tow-away on north side 4-6 p.m. on weekdays
Lincoln Way (west of 19th Ave.)	Secondary Arterial MTS Street	4	
Park Presidio Blvd.	Major Arterial MTS Street Neighborhood Ped. Street	6	US 1
Stanyan Street (between Turk Street and Fulton Street)	Major Arterial	2	
Stanyan Street (between Fulton Street & JFK Drive)	Secondary Arterial Secondary Transit Street	4/6	Tow-away on west & east sides 4-6 p.m. weekdays
Stanyan Street (south of JFK Drive)	Secondary Arterial Secondary Transit Street Bicycle Route	4/2	
Sunset Boulevard	Secondary Arterial MTS Street	6	
19th Avenue	Major Arterial MTS Street	6	US 1
25th Avenue	Secondary Arterial MTS Street Neighborhood Ped. Street	4	

Source: The Duffey Company

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[2] Planning Department of the City and County of San Francisco, *Transportation Element of the General Plan,* July 1995.
MTS = Metropolitan Transportation System.

There are 15.2 miles of roadways internal to the Park. Several of these roadways would be affected by proposals outlined in the *Draft Master Plan*. All of the Park's internal roadways (except for Crossover Drive/Park Presidio Bypass) are two-lane recreational streets. Most roadways cater primarily to Park-related traffic, although the following Park roadways also carry high levels of through traffic:

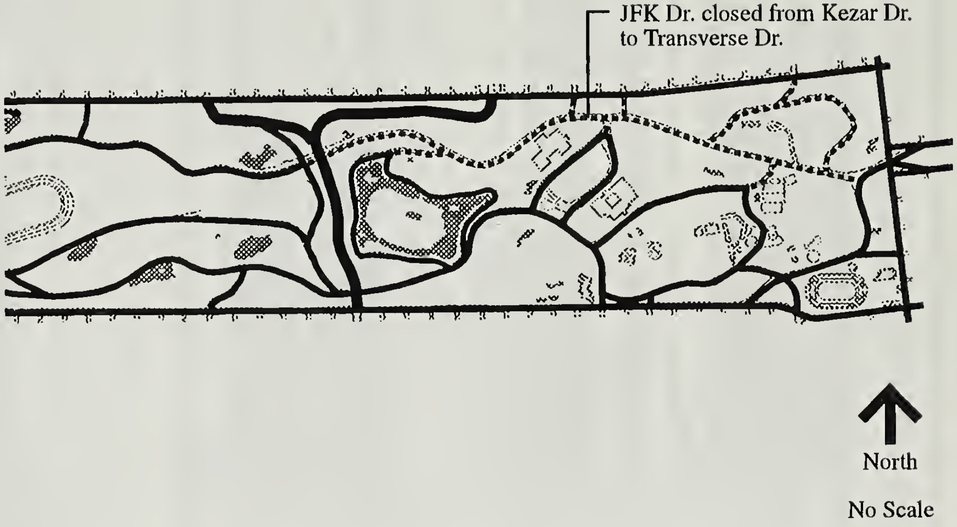
- Arguello Boulevard between Frederick Street and Kezar Drive
- Conservatory Drive East between Kezar Drive and Conservatory Drive West
- John F. Kennedy (JFK) Drive between Stanyan Street and 10th Avenue
- Martin Luther King (MLK) Jr. Blvd. between Crossover Drive and Sunset Boulevard
- South Fork Road between JFK Drive and MLK Jr. Boulevard
- Waller Street between Stanyan Street and Kezar Drive
- 7th Avenue between Lincoln Way and MLK Jr. Boulevard
- 30th Avenue between Fulton Street and MLK Jr. Boulevard
- 47th Avenue between Fulton Street and JFK Drive.

On Sundays, several roadways within the northeast section of the Park are closed to motor vehicle traffic (see Figure 22). These include JFK Drive east of Transverse Drive, Conservatory Drive East, Conservatory Drive West, 8th Avenue, 10th Avenue, and Bowling Green Drive between JFK Drive and Middle Drive East.

Intersections

Twenty-five intersections are analyzed for peak period operations within this study. Nine of the study intersections are stop sign controlled and 16 of the intersections are signalized. Due to Sunday roadway closures inside the Park, four of the study intersections operate with one less approach during Sundays. Several of the signalized study intersections have left-turn prohibitions. Tables 13 and 14 list the study intersections and their operational characteristics.

Existing Sunday/Holiday Road System
(no changes proposed)



— Roads open to motor vehicles

…… Roads closed to motor vehicles

Figure 22
Sunday/Holiday Road System

Table 13: Signalized Intersections

ID	Intersection	Signal Phases	Remarks
1	Stanyan/Fulton	3	Eastbound & westbound left-turns prohibited 4-6 p.m. weekdays. Additional northbound lane (No Parking) 4-6 p.m. weekdays
2	Arguello/Fulton	2	South approach closed on Sundays
3	8th/Fulton	2	South approach closed on Sundays
4	25th/Fulton	2	All left-turns prohibited 24 hours, South approach closed on Sundays
5	36th/Fulton	2	
7	Stanyan/Kezar	2	All left-turns prohibited 24 hours. Southbound approach proposed to be modified.
12	Crossover/MLK	2	Northbound & southbound left-turns prohibited 24 hours
14	Stanyan/Frederick	2	
16	9th/Lincoln	2	All left-turns prohibited 24 hours
17	19th-Crossover/Lincoln	2	All left-turns prohibited 24 hours
20	Great Highway/Lincoln	3	
21	19th/Kirkham	2	Northbound & southbound left-turns prohibited 24 hours
22	9th/Judah	2	MUNI line on north & west approaches
23	19th/Judah	2	All left-turns prohibited 24 hours, MUNI line on east & west approaches
24	9th/Irving	2	MUNI line on south & east approaches
25	19th/Irving	2	Northbound, southbound & westbound left-turns prohibited 24 hours

Source: The Duffey Company

Table 14: Unsignalized Intersections

ID	Intersection	Stop Sign Controlled Approach(es)	Remarks
6	Stanyan/Fell	Westbound	
8	Kezar/JFK	Eastbound	East approach closed on Sundays
9	36th/JFK	Southbound	
10	Great Hwy./JFK	Westbound	
11	9th/MLK	Westbound	
13	Sunset/MLK	Northbound, eastbound & westbound	All-way stop sign control
15	3rd/Lincoln	Northbound	
18	36th/Lincoln	Northbound	
19	37th/Lincoln	Westbound left-turn only	

Source: The Duffey Company

Traffic Volumes

Table 15 lists existing average weekday traffic volumes on roadways within the Park and on roadways adjacent to the Park. Most east-west roadways within the Park carry traffic volumes under 4,000 vehicles per day (vpd), with the exception of JFK Drive, which carries between about 9,000 and 18,000 vpd, and MLK Jr. Drive, west of 25th Avenue, which carries over 8,000 vpd. Kezar Drive, which provides a continuous route between the Fell /Oak Street couplet and Lincoln Way, carries over 45,000 vpd.

Heavily traveled north-south roadways within the Park include Chain of Lakes Drive (9,000 vpd), Crossover Drive (66,000 vpd), and Park Presidio Bypass (55,000 vpd). The latter two roadways connect and provide a continuous connection between 19th Avenue and Park Presidio Boulevard..

Twenty-four hour traffic counts conducted in and around the Park in recent years have consistently confirmed that the heaviest traffic volume periods occur on weekdays between 4 p.m. and 6 p.m. and on Sundays between 1 p.m. and 3 p.m. Saturday peak hour traffic volumes have historically been about 10 to 40 percent less than Sunday peak hour volumes on internal Park roadways, primarily due to JFK Drive's closure on Sundays, which shifts internal traffic to other Park roadways. Therefore, this study assesses the impacts the projects proposed in the *Draft Master Plan* would cause during typical weekday and Sunday peak traffic periods. During normal non-peak periods, including Saturdays, traffic volumes are lower and therefore associated impacts would likely be less.

To assess intersection service levels, weekday intersection turning movement counts were conducted on fair weather days between May and October. All Sunday intersection turning movement counts were conducted on October 15, 1995, a day characterized with sunny weather. The intersection counts are available in the "Final Transportation Study for the Golden Gate Draft Master Plan EIR", December 1996, available at the Planning Department.

Intersection Levels of Service

Operating characteristics of intersections are described using a concept called "level of service". Level of service (LOS) is a qualitative measure of an intersection's performance based on motorist delay. Intersection level of service ranges from LOS A, which indicates minimal delay and congestion-free conditions, to LOS F, which indicates excessive delay and over-capacity conditions.

Table 15: Existing Weekday Traffic Volumes

Roadway	Location	Weekday Traffic Volume[3]
Chain of Lakes Drive	North of MLK Jr. Drive	9,000
Conservatory Drive East		1,800
Crossover Drive	North of MLK Jr. Drive	66,000
Fulton Street	East of 30th Avenue	12,700
Fulton Street	East of 8th Avenue	20,800
Fulton Street	West of Stanyan Street	16,800
JFK Drive	East of 8th Avenue	17,800
JFK Drive	East of Chain of Lakes	8,800
Kezar Drive	West of Stanyan Street	45,600
Kezar Drive	East of Arguello Street	45,800
Lincoln Avenue	West of 19th-Crossover	18,900
Lincoln Avenue	East of 19th-Crossover	24,500
Lincoln Avenue	East of 7th Avenue	51,000
MLK Jr. Drive	West of Chain of Lakes	3,600
MLK Jr. Drive	West of 25th Avenue	8,300
MLK Jr. Drive	East of 7th Avenue	3,300
Middle Drive East		2,400
Middle Drive West		3,300
Park Presidio Bypass	South of Fulton Street	55,000
South Fork Drive		3,600

Source: The Duffey Company

All of the study intersections were evaluated using operational procedures from the *1994 Highway Capacity Manual, Special Report 209* by the Transportation Research Board. According to the manual, signalized intersections operate at LOS A conditions when the average delay is less than or equal to 5.0 seconds, LOS B with delay between 5.1 and 15.0 seconds, LOS C with delay between 15.1 and 25.0 seconds, LOS D with delay between 25.1 and 40.0 seconds, LOS E with delay between 40.1 and 60.0 seconds, and LOS F when the average delay exceeds 60.0 seconds.

At unsignalized intersections, only the stop sign controlled movements usually are subject to delay. Since unsignalized intersections typically carry lower traffic volumes, motorists tend to tolerate less delay than they do at signalized locations. Therefore, the level of service delay thresholds are lower and only pertain to stop sign controlled movements. According to the *Highway Capacity Manual,* LOS A conditions result when the stop delay is less than or equal to 5.0 seconds, LOS B with delay between 5.1 and 10.0 seconds, LOS C with delay between 10.1

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[3] DKS Associates, Golden Gate Park Master Plan Background Report, Transportation, March 1993.

and 20.0 seconds, LOS D with delay between 20.1 and 30.0 seconds, LOS E with delay between 30.1 and 45.0 seconds, and LOS F when the average stop delay exceeds 45.0 seconds.

The Planning Department considers an operational impact at a signalized intersection significant when project-related traffic causes the intersection to deteriorate from LOS D or better conditions to LOS E or LOS F conditions.

Presently, all but two of the signalized study intersections operate at LOS C or better during weekday peak periods. LOS D conditions occur at 19th Avenue-Crossover Drive/Lincoln Avenue during this period, while LOS E conditions occur at Stanyan Street/Fulton Street. This latter intersection also operates at LOS E during the Sunday peak period, while all of the other signalized study intersections function at LOS C or better on Sundays, as shown in Table 16.

Stop controlled movements at the unsignalized study intersections operate between LOS A and LOS F during both the weekday and Sunday peak periods. The most congested stop sign controlled movements (over 120 seconds of delay for over 100 vehicles per hour according to calculations; see Appendix C in the *Final Transportation Study for the Golden Gate Park Master Plan EIR*) during the weekday peak period occur at:

- Westbound left-turn at Stanyan Street/Fell Street
- Eastbound left-turn at Kezar Drive/JFK Drive
- Eastbound and westbound approaches at Sunset Blvd./MLK Jr. Blvd.
- Northbound left-turn at 3rd Avenue/Lincoln Avenue

The most congested stop sign controlled movements during the Sunday peak period occur at:

- Westbound left-turn at Stanyan Street/Fell Street
- Northbound left-turn at 3rd Avenue/Lincoln Avenue

Table 16: 1995 LOS for Signalized Intersections

ID	Intersection	Weekday Delay[4]/LOS	Sunday Delay[4]/LOS
1	Stanyan/Fulton	**50s / E**	**42s / E**
2	Arguello/Fulton	9s / B	6s / B
3	8th/Fulton	11s / B	9s / B
4	25th/Fulton	12s / B	9s / B
5	36th/Fulton	7s / B	6s / B
7	Stanyan/Kezar[5]	18s / C	13s / B
12	Crossover/MLK	19 s / C	10s / B
14	Stanyan/Frederick	9s / B	13s / B
16	9th/Lincoln	35s / D	8s / B
17	19th-Crossover/Lincoln	35s / D	19s / C
20	Great Highway/Lincoln	14s / B	16s / C
21	19th/Kirkham	12s / B	12s / B
22	9th/Judah	8s / B	8s / B
23	19th/Judah	14s / B	10s / B
24	9th/Irving	8s / B	7s / B
25	19th/Irving	12s / B	10s / B

Source: The Duffey Company

Table 17 summarizes existing service levels at the unsignalized study intersections.

Table 17: 1995 LOS for Unsignalized Intersections

ID	Intersection	Movement[6]	Weekday LOS	Sunday LOS
6	Stanyan/Fell	SB LT	B	B
		WB LT (s)	F	F
		WB RT (s)	B	B
8	Kezar/JFK	EB LT (s)	F	Closed
		EB RT (s)	F	Closed
9	36th/JFK	SB RT (s)	A	A
10	Great Hwy./JFK	SB LT	B	B
		WB LT (s)	F	F
		WB RT (s)	A	B
11	9th/MLK	SB LT	A	A
		WB LT (s)	C	B
		WB RT (s)	A	A
13	Sunset/MLK	NB (s)	F	C
		EB (s)	F	C
		WB (s)	F	B
15	3rd/Lincoln	NB LT (s)	F	F
		NB RT (s)	B	B
18	36th/Lincoln	NB LT (s)	F	E
		NB RT (s)	B	A
19	37th/Lincoln	WB LT (s)	C	C

Source: The Duffey Company

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[4] = seconds

[5] Analyzed assuming existing striping and signal phasing.

[6] Movements: SB = southbound, WB = westbound, etc. LT = left-turn and RT = right-turn. (s) = stop sign controlled movement.

TRANSIT NETWORK

Golden Gate Park is serviced by numerous MUNI transit routes and is accessible by transit from almost anywhere in the City, although one or more transfers are required from most areas. Thirteen bus routes traverse sections of the Park or travel along its peripheral roadways. Another eight bus routes offer stops within two blocks of the Park. In addition, a MUNI Metro light rail route parallels the southern edge of the Park. Table 18 lists existing transit routes and Figure 23 shows the existing transit routes.

Table 18: Existing Transit Routes

Route	Service Hours[7]	Major Service Areas[8]
2 Clement	W-Sa-Su	CBD, Nob Hill, Western Addition, Laurel Heights, Richmond
5 Fulton	W-Sa-Su-O	CBD, Hayes Vly., Laurel Heights, Richmond
6 Parnassus	W-Sa-Su	CBD, Hayes Vly., Haight Ashbury, Forest Hill
7 Haight	W-Sa-Su	CBD, Hayes Vly., Haight Ashbury
16AX Noriega - 'A'	W	CBD, Hayes Vly., Haight Ashbury, Sunset
16BX Noriega - 'B'	W	CBD, Hayes Vly., Haight Ashbury, Sunset
18 46th Avenue	W-Sa-Su	Richmond, Sunset, Parkside, Parkmerced, Stonestown
21 Hayes	W-Sa-Su	CBD, Hayes Vly., Laurel Heights, Richmond
28 19th Avenue	W-Sa-Su-O	Marina, Presidio, Richmond, Sunset, Stonestown, Ingleside
28L 19th Ave 'L'	W	Richmond, Sunset, Stonestown, Ingleside
29 Sunset	W-Sa-Su	Presidio, Richmond, Sunset
31 Balboa	W-Sa-Su	CBD, Hayes Vly., Laurel Heights, Richmond
31AX Balboa 'A'	W	CBD, Western Addition, Laurel Heights, Richmond
31BX Balboa 'B'	W	CBD, Western Addition, Laurel Heights, Richmond
33 Stanyan	W-Sa-Su	Mission, Haight Ashbury, Laurel Heights
37 Corbett	W-Sa-Su	Diamond Heights, Mission, Haight Ashbury
38 Geary	W-Sa-Su-O	CBD, Western Addition, Laurel Heights, Richmond
43 Masonic	W-Sa-Su	Marina, Presidio, Laurel Heights, Haight Ashbury, Forest Hill, West Portal, Ingleside
44 O'Shaughnessy	W-Sa-Su	Hunters Point, Diamond Heights, Forest Hill, Richmond
66 Quintara	W-Sa-Su	CBD, Hayes Vly., Haight Ashbury, Forest Hill
71 Haight-Noriega	W-Sa-Su	CBD, Hayes Vly., Haight Ashbury, Sunset
N Judah	W-Sa-Su-O	CBD, Haight Ashbury, Sunset

Source: The Duffey Company

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[7] Service Hours: W = weekday, Sa = Saturday, Su = Sunday, O = Owl.

[8] CBD = Central Business District (Downtown)

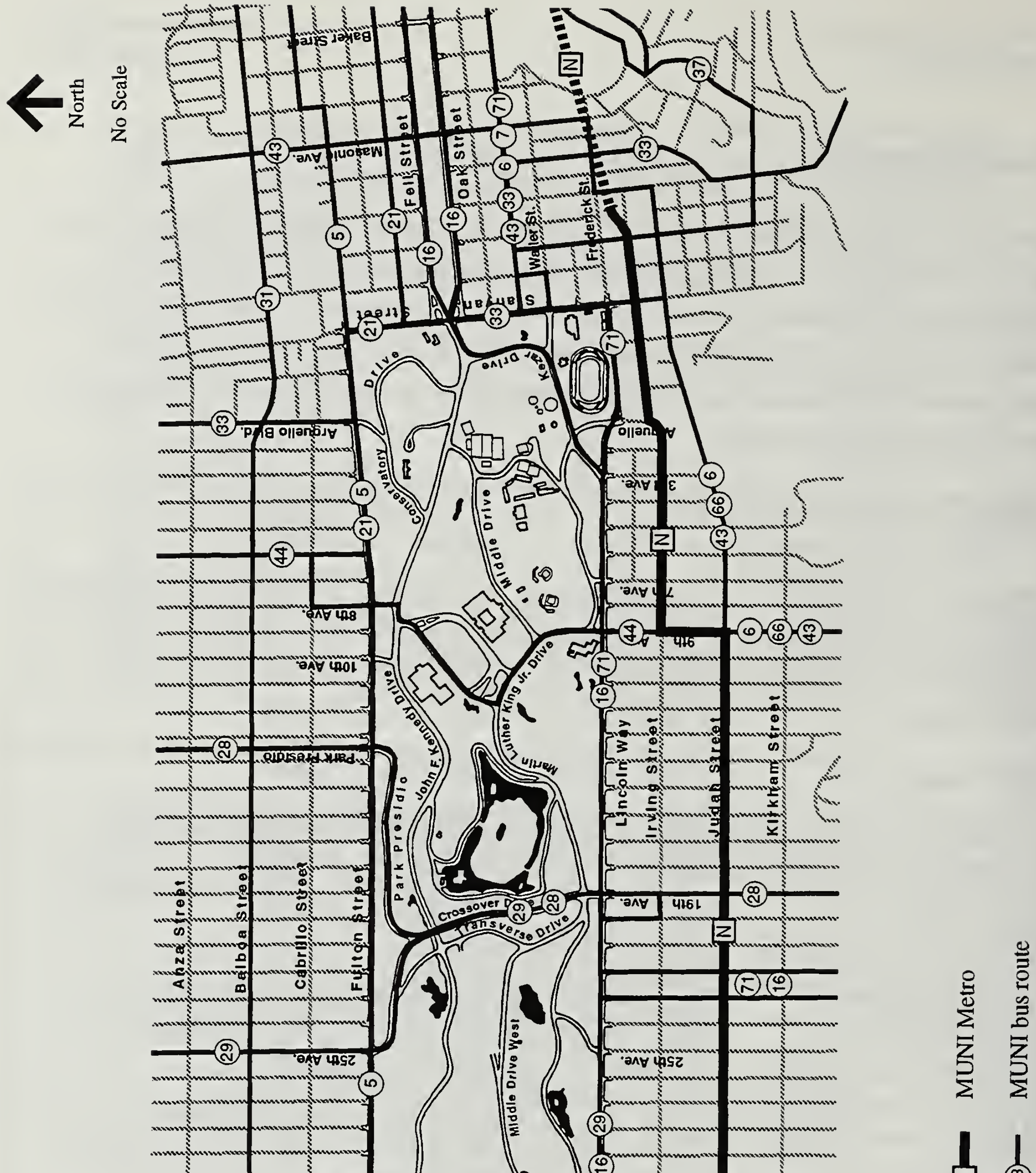

Figure 23
Transit Network

PARKING CONDITIONS

The next sections describe existing on-street commuter parking conditions within the Park and resident parking conditions along public streets within two blocks of the east side of the Park---all areas where parking supplies are often fully or close to fully utilized.

Parking Within the Park

Weekday commuters currently park on several roadways in the eastern area of the Park (i.e., east of Crossover Drive). The heaviest concentration of commuter parking within the Park occurs along the following southeastern roadways: Arguello Street, Waller Street, 7th Avenue, 9th Avenue, and segments of Bowling Green Drive, Kezar Drive, and MLK Jr. Drive. Some commuters park their vehicles either along Conservatory Drive East or JFK Drive in the northeastern section of the Park. Most commuters who park on these streets walk to nearby employment centers or a university. Some commuters transfer to a bus.

As shown in Figure 24, parking is prohibited on weekdays between 6 a.m. and 9 a.m. along 7th Avenue, 9th Avenue, and segments of Bowling Green Drive and MLK Jr. Drive. Limited enforcement is done before 9 a.m. and the bulk of the commuters arrive just before or after 9 a.m. However, the Park has a three-hour maximum parking limit, effective from 7 a.m. and 6 p.m., which has proven to limit the number of long-term parkers along most of Bowling Green Drive.

To document the amount of weekday commuter parking occurring along Park roadways, parking surveys were conducted between 8 a.m. and 10 a.m. on all the roadways in the east portion of the Park.[9] While only about 70 commuter vehicles parked in the northeastern part of the Park during this time period---50 along Conservatory Drive East and about 20 along JFK Drive near McLaren Lodge--- many southeastern Park roadways were almost entirely full. It was observed that almost all of the vehicles arriving in the southeastern part of the Park carried commuters. This conclusion was based on the directions which the motorists and passengers walked after parking---almost all of the motorists and passengers were observed to walk south away from the Park---and an observation that around 3 p.m. almost all of the same vehicles were still parked where they were in the morning.

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[9] Parking surveys were conducted on the southeastern roads within the Park during the week of January 29, 1996 and on northeastern roads within the Park on February 22, 1996.

Figure 24 illustrates the observed weekday commuter parking conditions. Overall, it was estimated that about 520 commuters parked along Park roadways---450 on southeastern roads and 70 on northeastern roads.[10]

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[10] Due to some parking fluctuations and for ease of readability, most parking data has been rounded to the nearest ten.

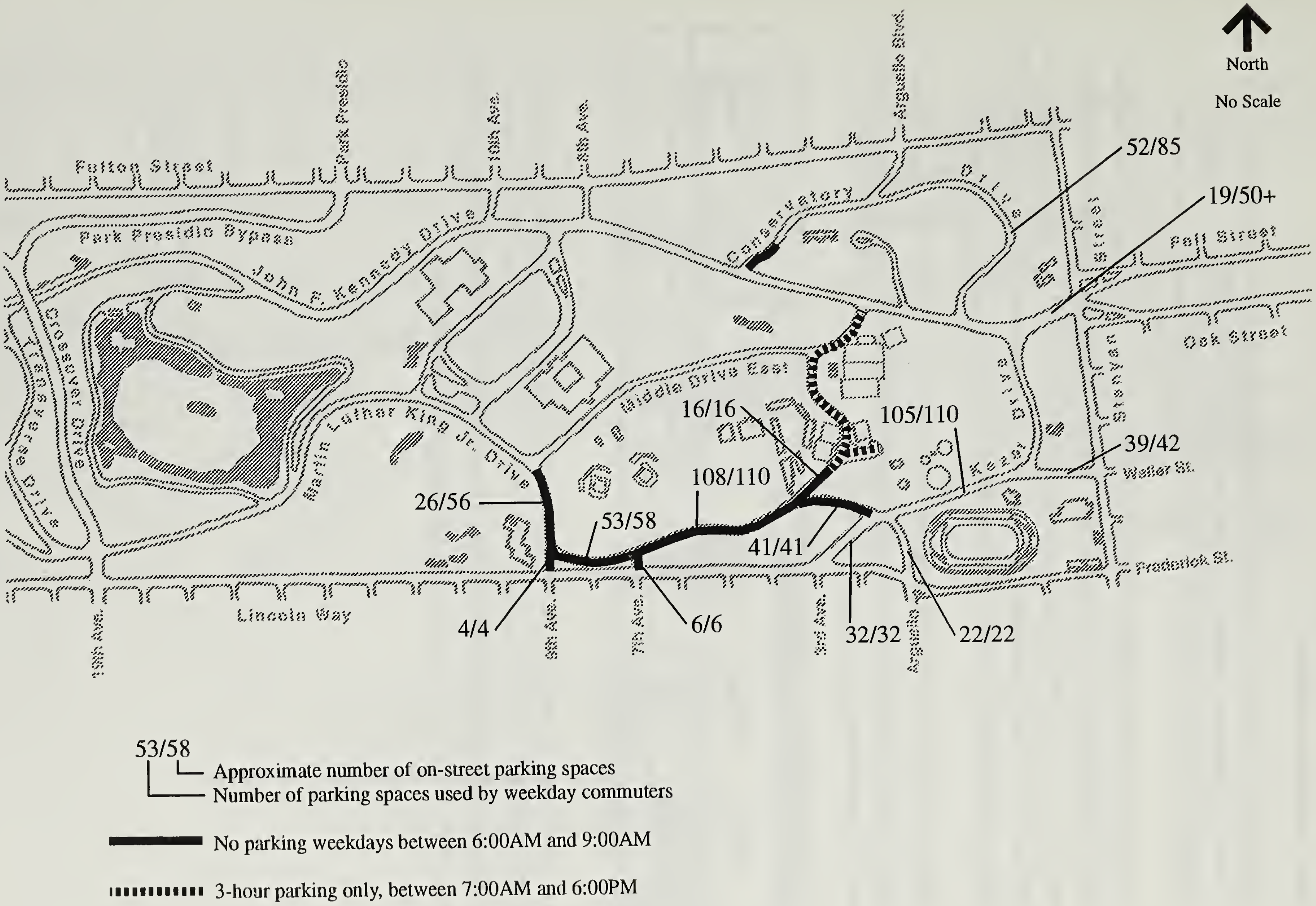


Figure 24

Commuter Parking Within East Park

Parking Northeast of the Park

On-street parking conditions along public roadways within two blocks of the east portion of the Park were also observed. Parking control, demand and supply surveys were conducted on Wednesday, November 8, 1995 and Sunday, November 12, 1995 between 11 a.m. and 3 p.m.

Figure 25 shows parking conditions north of Fell Street and Fulton Street, east of Park Presidio, south of Balboa Street, and west of Cole Street. Between Arguello Boulevard and Cole Street, most of the on-street parking is subject to residential parking permit “L”. On Funston Avenue, on-street parking is subject to residential parking permit “N”. On-street parking is not permitted along Stanyan Street between Fell Street and Fulton Street on weekdays between 4 p.m. and 6 p.m.

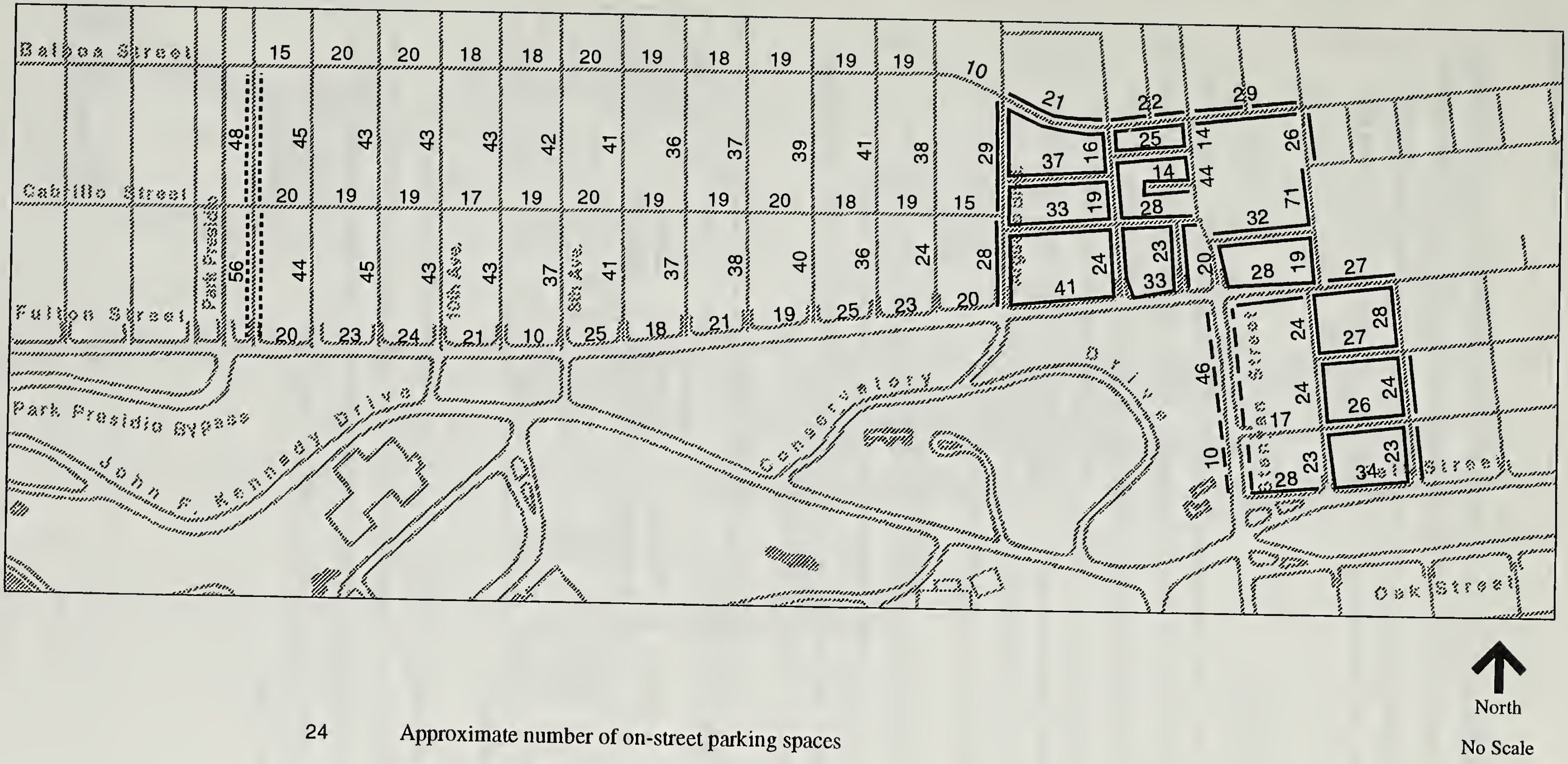
There are over 2,700 on-street parking spaces in the area northeast of the Park. Over 1,000 of these are located east of and including Arguello Boulevard and almost 1,700 of these are located west of Arguello Boulevard, as shown in Table 19.

Table 19: Northeast Parking Conditions

Area	Supply	Weekday Available	Weekday Percent Available	Sunday Available	Sunday Percent Available
East of Arguello	1,040	240	23%	150	14%
West of Arguello	1,670	530	32%	180	11%
Total	**2,710**	**770**	**28%**	**330**	**12%**

Source: The Duffey Company

During the midday on weekdays, about 770 on-street parking spaces are available northeast of the Park. Most of the vacant spaces are located west of Arguello Boulevard, with 90 spaces available along Funston Avenue alone. East of Arguello Boulevard, 240 spaces are available, but most of these are subject to two-hour parking restrictions for non-residents.



24 Approximate number of on-street parking spaces

.... Residential Parking Permit "N"

——— Residential Parking Permit "L"

– – – – No parking weekdays between 4:00PM and 6:00PM

Figure 25

Parking Supply and Controls Northeast of Park

On Sundays, fewer vacant parking spaces exist due to a higher concentration of resident's and Park visitor's vehicles. Overall, 330 on-street parking spaces are available on the public streets northeast of the Park. However, excluding two-hour parking areas for non-residents (Funston Avenue and streets east of and including Arguello Boulevard), about 110 parking spaces are available.

Parking Southeast of the Park

Figure 26 shows parking conditions north of Judah Street and Parnassus Avenue, east of 19th Avenue, south of Lincoln Way and Oak Street, and west of Cole Street. Between 7th Avenue and Stanyan Street, most of the on-street parking is subject to residential parking permit "J". On-street parking is not permitted along the north side of Lincoln Way between 3rd and 11th Avenues and between 18th and 19th Avenues at any time. On weekdays between 4 p.m. and 6 p.m., parking is not permitted on the north side of Lincoln Way between 11th and 18th Avenues to accommodate a third westbound travel lane.

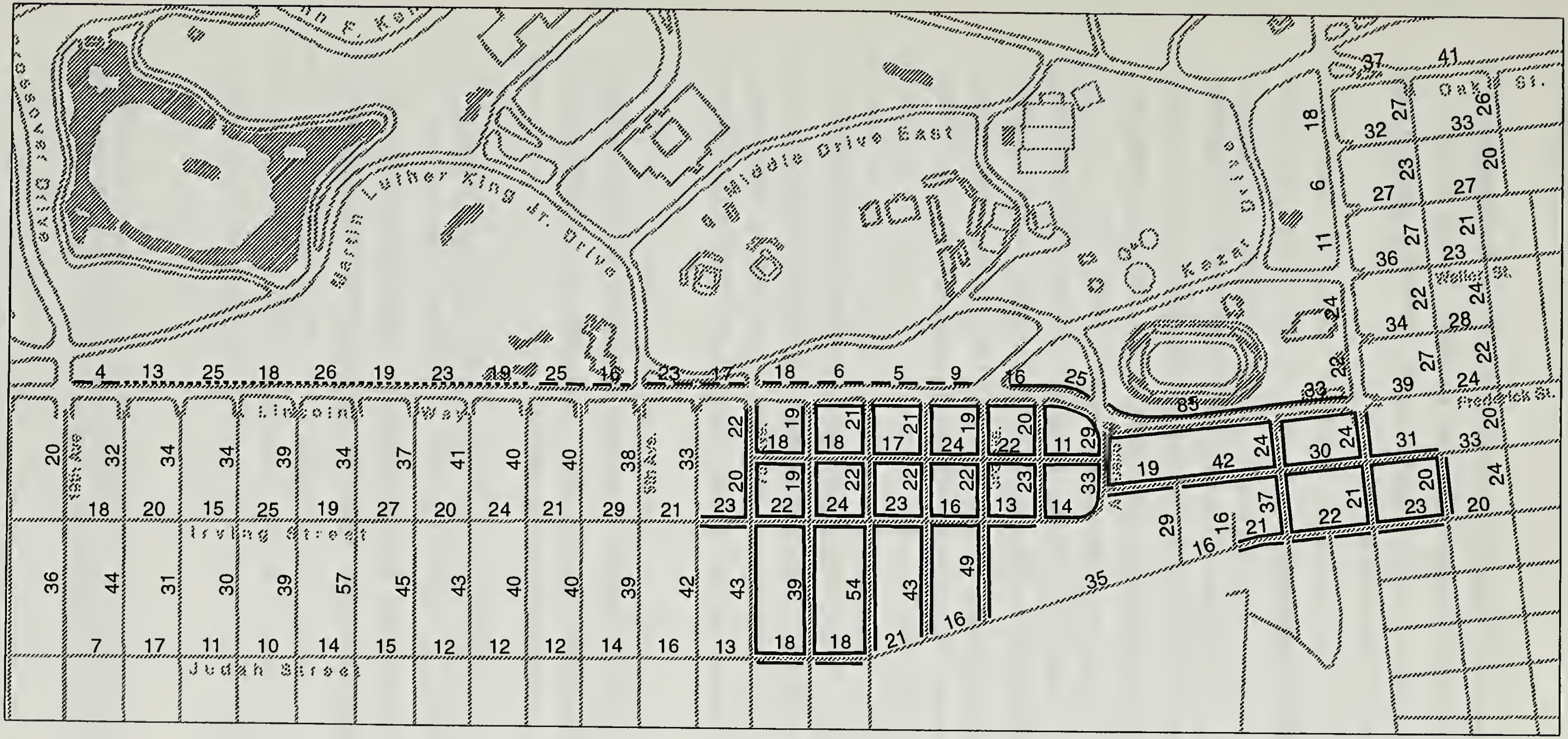
As shown in Table 20, there are approximately 3,800 on-street parking spaces in the area southeast of the Park. Over 900 of these are located east of and including Stanyan Street. Nearly 1,400 parking spaces are located west of and including 9th Avenue. Over 1,500 parking spaces exist between Stanyan Street and 9th Avenue.

Table 20: Southeast Parking Conditions

Area	Supply	Weekday Available	Weekday Percent Available	Sunday Available	Sunday Percent Available
East of Stanyan	920	110	12%	20	2%
Between Stanyan & 9th	1,510	90	6%	70	5%
West of 9th	1,360	220	16%	190	14%
Total	**3,790**	**420**	**11%**	**280**	**7%**

Source: The Duffey Company

During the midday on weekdays, 420 on-street parking spaces are available southeast of the Park. Over one-half of these are located west of 9th Avenue and these include parking along the north side of Lincoln Way. Ninety spaces are available between Stanyan Street and 9th Avenue, but most of this area is restricted to two-hour parking for non-residents. Over 100 spaces are available east of Stanyan Street.



24	Approximate number of on-street parking spaces
———	Residential Parking Permit "J"
··············	No parking weekdays between 4:00PM and 6:00PM
— — — —	No parking any time

Figure 26
Parking Supply and Controls Southeast of Park

On Sundays, only two to five percent of the parking spaces east of 9th Avenue are vacant due to a higher concentration of resident's as well as some Park visitor's vehicles. Overall, about 270 on-street parking spaces are available on the public streets southeast of the Park. However, only about 90 spaces could be found east of 9th Avenue.

PEDESTRIAN AND BICYCLIST FACILITIES

Walking and jogging are two of the primary ways that people enjoy Golden Gate Park. There are numerous paved pedestrian paths, both adjacent to roadways and separate from them, throughout the Park. There are also many unpaved trails throughout the Park. Some paths are multiple-use paths that permit bicycles, roller skaters and pedestrians. Some paths accommodate pedestrians and equestrians. Continuous pedestrian paths, varying in width from 4 feet to 12 feet, exist along most of the Park's roadways, with the exception of missing segments along Conservatory Drive East, Bowling Green Drive, Middle Drive East, and the southeastern side of Kezar Drive (the Department of Parking and Traffic recently obtained funding to complete the missing segment on Kezar Drive).

The Park serves as a primary transportation route for bicyclists in the western part of the city. As previously shown in Figure 11 on page 50, a system of on-street (Class III) bike routes and multiple-use (Class I) bike paths exist throughout the Park. The on-street bike routes are along roads that have sufficient road space for bicycles or make important connections to the peripheral bikeway system.

The off-street, or multiple-use, bike paths provide an alternative for bicyclists who prefer to ride separate from traffic. Many of the existing bike paths are poorly designed or are in bad condition for bicycle use. Most of these paths are shared with pedestrians.

Pedestrian and bicycle usage is heavy throughout the Park, particularly in the eastern area of the Park and on weekends. During Sundays and holidays when JFK Drive and nearby roadways (between Kezar Drive and Transverse Drive) are closed to motor vehicles, these roadways are occupied by pedestrians, bicyclists, roller skaters, skate boarders and other recreational users.

D. NOISE

INTRODUCTION

Environmental noise is usually measured in A-weighted decibels (dBA).[1] Noise typically fluctuates over time, and different types of noise descriptors are used to account for this variability. A typical noise descriptor is the energy-equivalent noise level (L_{eq}). The L_{eq} is the equivalent continuous sound level which has the same energy content as the varying sound level over the period monitored. Other useful noise descriptors include the day-night average noise level (L_{dn}) and the community noise equivalent level (CNEL). The L_{dn} is based on human reaction to cumulative noise exposure over a 24-hour period. For the L_{dn}, noise between 10:00 p.m. and 7:00 a.m. is weighted by adding 10 dBA to take into account the greater annoyance of nighttime noises. CNEL is similar to L_{dn}, but an additional 5 dBA "penalty" is added to evening noise (7:00 p.m. to 10:00 p.m.). The L_{dn} and CNEL are considered equivalent for most planning purposes.

Noise levels are measured on a logarithmic scale, and therefore, are not added in the usual arithmetic manner. A doubling of sound energy results in a three-dBA increase in noise levels, which is the smallest change in noise level detectable by the average person. A noise level increase of 10 dBA is perceived as being twice as loud. Generally, in areas where existing noise levels are dominated by traffic, a doubling in the volume of vehicular traffic will cause ambient noise levels to increase by three dBA.

The noise level experienced at a receptor depends on the distance between the source and the receptor, presence or absence of noise barriers and other shielding devices, and the amount of noise attenuation (lessening) provided by the intervening terrain. For line sources, such as motor vehicle traffic, noise decreases by about 3.0 to 4.5 dBA for every doubling of the distance from the roadway. For point or stationary noise sources, such as electric motors, a noise reduction of 6.0 to 9.0 dBA is experienced for each doubling of the distance from the source.

The amount of noise attenuation (reduction) depends to a large extent on the sound absorptive characteristics of the intervening terrain. Soft earth with vegetative cover provides a 4.5 dBA attenuation with distance, while hard exposed surfaces provide a noise attenuation of only 3.0 dBA. Noise barriers or shielding devices that break the line of sight between the source and the receptor would generally provide a noise attenuation of about 5-10 dBA.

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[1] A decibel (dB) is a logarithmic unit of sound energy intensity. Sound waves, traveling outward from a source, exert a sound pressure level (commonly called "sound level") measured in decibels. A dBA is a decibel corrected for the variation in frequency response of the typical human ear at commonly encountered noise levels.

APPLICABLE NOISE REGULATIONS

Figure 27 sets forth the recommended noise level of 70 L_{dn} for playgrounds and parks based on guidelines of the Office of Noise Control, State Department of Health Services and published in the Environmental Protection Element of the San Francisco General Plan.

In the City, regulation of noise is stipulated in Article 29 of the Police Code[2], which states the City's policy is "prohibit unnecessary, excessive and offensive noises from all sources subject to police power." Sections 2907 and 2908 of Article 29 regulate construction equipment and construction work at night. Relevant sections are presented as follows:

Section 2907 (b) states "it shall be unlawful for any person, including the City and County of San Francisco, to operate any powered construction equipment, regardless of age or date of acquisition, if the operation of such equipment emits noise at a level in excess of 80 dBA [3] when measured at a distance of 100 feet from such equipment, or an equivalent sound level at some other convenient distance." Exemptions to this requirement include:

- impact tools and equipment with intake and exhaust mufflers recommended by the manufacturers and approved by the Director of Public Works as best accomplishing maximum noise attenuation; and

- pavement breakers and jackhammers equipped with acoustically attenuating shields or shrouds recommended by the manufacturers and approved by the Director of Public Works as best accomplishing maximum noise attenuation.

In the absence of any other noise standard for impact tools, a noise guideline that has been implemented for projects in San Francisco restricts the operation of impact tools so that the interior ambient noise level at the nearest sensitive receptor does not increase by more than 5 dBA.

Section 2908 prohibits any person, between the hours of 8:00 p.m. of any day and 7:00 a.m. of the following day to erect, construct, demolish, excavate for, alter, or repair any building or structure if the noise level created is in excess of the ambient noise level by 5 dBA at the nearest

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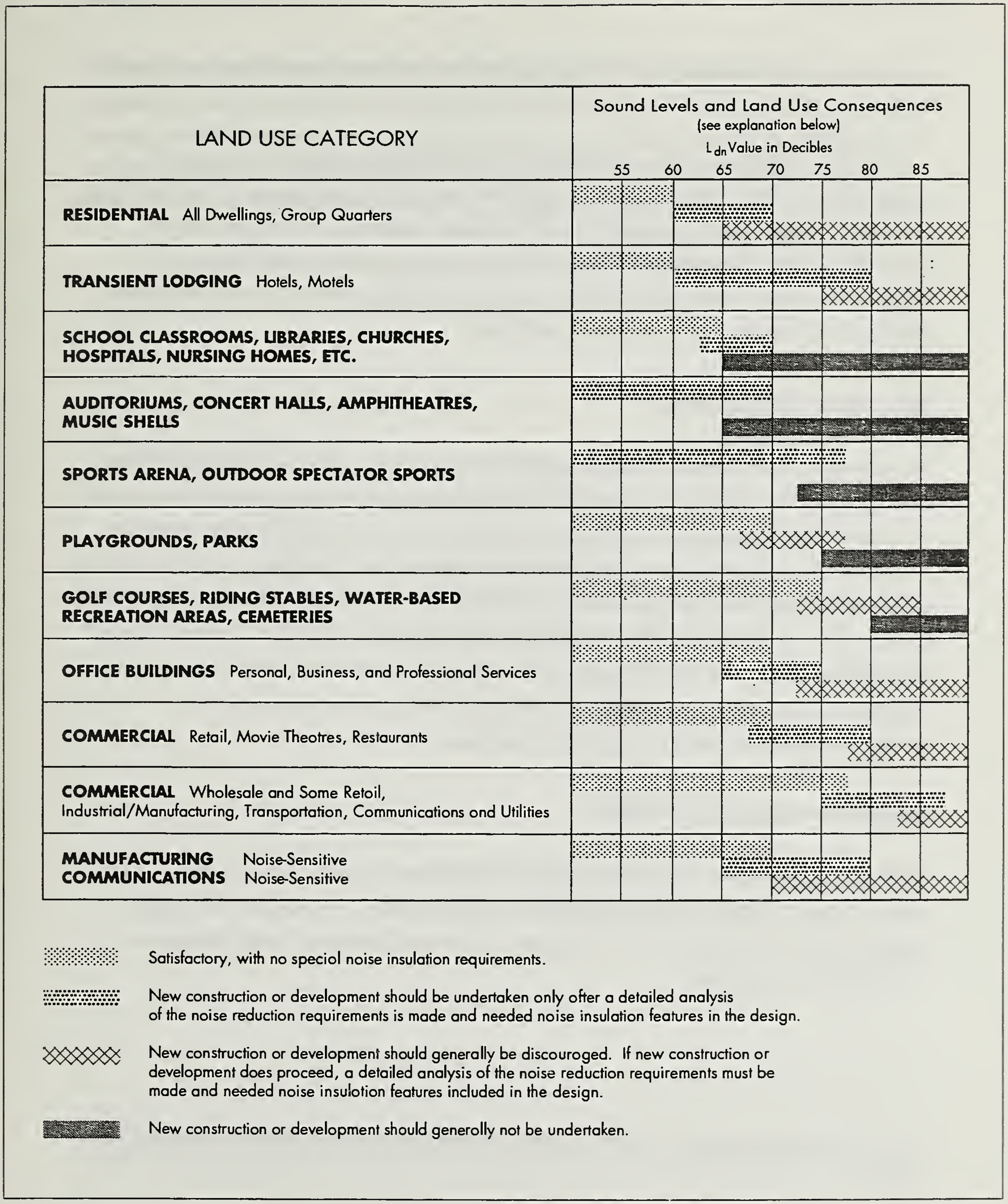
[2] Police Code regulations were developed for urbanized residential and commercial areas, not for parkland.

[3] dBA is a measure of sound in units of decibels (dB) on the A-weighted scale. The A-weighted decibel scale simulates the response of the human ear to various frequencies of sound.



░ Satisfactory, with no special noise insulation requirements.

▒ New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features in the design.

▨ New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

▓ New construction or development should generally not be undertaken.

Source: San Francisco General Plan
Environmental Protection Element

Figure 27

Noise Levels Compatible With Land Use Types

property line unless a special permit has been applied for and granted by the Director of Public Works.

In addition to construction activities, Section 2901.11 of Article 29 addresses unnecessary, excessive or offensive noise in general. It states that "unnecessary, excessive or offensive noise shall mean any sound or noise conflicting with the criteria, standards, or levels set forth for permissible noises. In the absence of specific maximum noise levels, a noise level which exceeds the ambient noise level by 5 dBA or more when measured at the nearest property line shall be deemed a prima facie violation of this Article."

EXISTING AMBIENT NOISE

The existing noise environment in and around Golden Gate Park is reflective of typical activities associated with recreational use of the Park (tennis balls hitting a racquet; children at play; horses on a paved surface; spectators cheering a soccer game, and so on) and with automobiles and buses on Park roads and in surrounding residential neighborhoods. Generally, noise levels during the day along major roadways surrounding the Park (Great Highway and 19th Avenue/MLK) would be about 75-80 dBA, Ldn. The Environmental Protection Element of the *San Francisco General Plan* indicates that the background noise within a City park is satisfactory, with no special noise insulation requirements up to 67 dBA, Ldn[4]. Above 67 dBA, Ldn new construction or development should consider noise reduction measures.

SENSITIVE NOISE RECEPTORS

Sensitive noise receptors are generally considered to include hospitals, nursing homes, senior citizen centers, schools, churches and libraries. Sensitive receptors in the area surrounding (adjacent to) the Park include: St. Mary's Hospital at Stanyan Street and Fulton Street at the northeast corner of the Park.

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[4] Ldn, a day-night average noise level, represents a cumulative measure in decibels (dBA) of community noise during a 24-hour period. It applies weighting factors to account for people's lower tolerance to noise during the night (10 p.m. to 7 a.m.)

Sensitive receptors within Golden Gate Park include outside areas designated for ceremonies and meditation (Shakespeare Garden, Japanese Tea Garden, Redwood Grove, Tree Fern Dell, De Laveaga Dell/AIDS Memorial Grove, Strybing Botanical Gardens) and museums, libraries, and educational facilities (Sharon Building, Helen Crocker Russell Horticultural Library, de Young Museum, Chinese Pavilion, California Academy of Sciences, Senior Center).

E. AIR QUALITY/CLIMATE/SHADOWS

METEOROLOGY

The San Francisco Bay Area climate is Mediterranean in character, with mild, rainy winter weather from November through March, and warm, dry weather from June through October. The movements of marine air, which in large part determine the temperature, humidity, wind, and precipitation throughout the year, depend upon the location and strength of the dominant Pacific high-pressure system and the coastal temperature cross gradient. It creates cool summers, mild winters, and infrequent rainfall; it drives the cool daytime sea breeze and maintains comfortable humidities. Temperatures in the San Francisco area average 58 degrees Fahrenheit annually, ranging from the mid-40s on winter mornings to the mid-70s in late summer afternoons. The strong onshore flow of wind in summer keeps cool air and frequent cloudiness over the Bay Area until September when the offshore Pacific high pressure center weakens and migrates southward. Warmest temperatures generally occur in September and October. Temperature extremes, reaching 90 degrees or dropping to freezing, are rare in San Francisco. Rainfall in San Francisco averages 18 inches per year and is confined primarily to the “wet” season from late October to early May. Except for occasional light drizzles from thick marine stratus clouds, summers are almost completely dry.

Winds in the Golden Gate Park area during the daytime (especially during summer months) are from the southwest/west at 10 to 14 miles per hour. At night, especially during winter months, the land becomes cooler than the water and an offshore flow develops. In San Francisco, the marine intrusion is so strong that the onshore flow persists both day and night during the warmer months. Consequently, pollution levels are low and the project area generally experiences excellent air quality and rarely exceeds clean air standards.

AMBIENT AIR QUALITY STANDARDS

The Clean Air Act Amendments of 1970 established national ambient air quality standards, and individual states retained the option to adopt more stringent standards and to include other pollutants. California had already had air quality standards in existence before federal standards were established, and because of the unique meteorological conditions in the state, there are considerable differences between state and federal standards currently in effect in California, as shown in Table 21.

The ambient air quality standards are intended to protect the public health and welfare and they incorporate an adequate margin of safety. They are designed to protect those segments of the public most susceptible to respiratory distress, known as sensitive receptors, such as asthmatics, the very young, the elderly, people weak from illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels somewhat above the ambient air quality standards before adverse health effects are observed.

Table 21: California and National Ambient Air Quality Standards

Pollutant	Averaging Time	SAAQS /a/	NAAQS /b/
Ozone	1 hour	0.09 ppm /c/	0.12 ppm
Carbon Monoxide	1 hour 8 hour	20 ppm 9.0 ppm	35 ppm 9 ppm
Nitrogen Dioxide	1 hour Annual	0.25 ppm NA	NA 0.053 ppm
Sulfur Dioxide	I hour 24 hour Annual	0.25 ppm 0.04 ppm NA	NA 0.14 ppm (365 ug/m^3) 0.03 ppm (80 ug/m^3)
SuspendedParticulate Matter (PM_{10})	24 hour Annual	50 ug/m^3 /c/ 30 ug/m^3	150 ug/m^3 50 ug/m^3
Sulfates	24 hour	25 ug/m3	NA
Lead	30 day Calendar Quarter	1.5 ug/m3 NA	NA 1.5 ug/m3
Hydrogen Sulfide	I hour	0.03 ppm	NA
Vinyl Chloride	24 hour	0.010 ppm	NA

/a/ SAAQS stands for State Ambient Air quality Standards (California). SAAQS for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, and respirable particulate matter are values that are not to be exceeded. All other California standards shown are values not to be equaled or exceeded.

/b/ NAAQS stands for national Ambient Air Quality Standards. NAAQS, other than ozone and those based on annual averages, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one
.

/c/ ppm = parts per million by volume; ug/m^3 = micrograms per cubic meter;

NA = Not Applicable

Source: Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans, April 1996.

AMBIENT AIR QUALITY

The Bay Area Air Quality Management District (BAAQMD) operates a regional monitoring network which measures the ambient concentration of six criteria air pollutants: ozone (O_3), carbon monoxide (CO), fine particulate matter (PM_{10}), lead (Pb), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). On the basis of the monitoring data, the Bay Area, including San Francisco, is designated an "attainment" area with respect to the federal air quality standards. Air quality attainment means that the standards are met as required by National Ambient Air Quality Standards and the California Clean Air Act (AB-2595). San Francisco occasionally experiences violations of California eight-hour CO and PM_{10} standards, but has not recently violated the O_3 standard. State ozone standards are exceeded in portions of the Bay Area Air Basin, especially the Santa Clarita and Livermore Valleys.

Existing and probable future levels of air quality in the City can be generally inferred from ambient air quality measurements conducted by the Bay Area Air Quality Management District (BAAQMD). The Potrero Hill station at 10 Arkansas Street measures all criteria pollutants, including regional pollution levels (O_3) as well as primary vehicular emission levels near busy roadways (CO). Table III-13 summarizes five years of published data (1991- 1995) from the monitoring station. During this five-year period, there were no violations of the eight-hour CO standards at the Arkansas Street monitoring station measurement days.[1] O_3, NO_2 and SO_2 (particulate sulfate) measurements were within the allowable maximum concentrations. The California PM_{10} standard was violated on six measurement days in 1994, but the number of annual exceedances has generally gone down each year since 1991. The national PM_{10} standards have not been exceeded since 1991.

Comparison of these data with those from other BAAQMD monitoring stations indicates that San Francisco's air quality is among the least degraded of all developed portions of the Bay Area. Three of San Francisco's four prevailing winds, west, northwest, and west-northwest, blow from the Pacific Ocean, reducing the potential for San Francisco to receive air pollutants from elsewhere in the region.

Data from air quality monitoring in San Francisco show that there have been occasional local exceedances of California and Federal PM_{10} standards, largely due to air pollutant emissions from within the City. The primary sources of particulates (PM_{10}) in San Francisco are construction and demolition, combustion of fuels for heating, and vehicle travel over paved roads.[2] Airborne dust levels measured in San Francisco show occasional violations of the California PM_{10} (inhalable or respirable sized particles) standards, and maximum PM_{10} levels decreased since 1991 as shown in Table 22. In general, particulate levels are relatively low near the coast, increase with distance from the coast, and peak in dry, sheltered valleys. No Federal violations have occurred since 1991; federal guidelines allow for no more than one violation averaged over a three-year period in defining a "non-attainment" area.

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[1] California Air Resources Board, *Air Quality Data Summaries,*1991-1995.

Table 22: San Francisco Ambient Air Quality Monitoring Summary 1991-1995

		Number of Days Standards were Exceeded and Maximum Concentration Measured				
Pollutant	Standard	1991	1992	1993	1994	1995
Ozone (O_3)						
1-Hour (State)	>0.09 ppm	0	0	0	0	0
Max. 1-Hour conc. (ppm)		0.05	0.08	0.08	0.06	0.09
Carbon Monoxide (CO)						
1-Hour (State)	>20.0 ppm	0	0	0	---/a/	---
8-Hour (State, national)	> 9.0 ppm	0	0	0	0	0
Max. 1-Hour conc. (ppm)		9	8	7	---	---
Max. 8-Hour conc. (ppm)		6.5	6.4	5.1	4.4	4.4
Nitrogen Dioxide (NO_2)						
1-Hour	>0.25 ppm	0	0	0	0	0
Max. 1-Hour conc. (ppm)		0.10	0.09	0.08	0.09	0.09
Suspended Particulates (PM_{10})						
24-Hour (State)	>50 ug/m^3	15	9	5	6	0
Max. Daily conc. (ug/m^3)		109	81	69	65	58
Particulate Sulfate (SO_2)						
24-Hour (State)	>25 ug/m^3	0	0	0	0	0
Max. 24-Hour conc. (ug/m^3)		7.9	18.2	12.4	5.0/a/	7.0/a/

/a/ One hour measurements not reported

SOURCE: California Air Resources Board, Summary of Air Quality Data, 1991-1995 BAAQMD Monitoring Stations, 10 Arkansas Street.

The automobile and other mobile sources are the dominant contributors to the regional pollution burden for nitrogen dioxide and carbon monoxide. These sources also contribute a substantial fraction of reactive organic gases, the other important precursor to regional smog formation. On-road sources (of which existing travel to and from Golden Gate Park is a small fraction of all regional travel) generate 24 percent of all reactive organic gases, 53 percent of nitrogen oxides, and 67 percent of all regional carbon monoxide emissions.

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[2] BAAQMD, *Air Quality Handbook,* 1991 Bay Area Average Emissions by Source Category, Appendix IV, 1993.

AIR QUALITY PLANNING

The 1977 Clean Air Act required that regional planning and air pollution control agencies prepare a regional Air Quality Plan to outline the measures by which both stationary and mobile sources of pollutants can be controlled in order to achieve all standards within the deadlines specified in the Clean Air Act. For the Bay Area Air Basin, the Association of Bay Area Governments (ABAG), the Metropolitan Transportation Commission (MTC), and the BAAQMD jointly prepared a Bay Area Air Quality Plan in 1982 which predicted attainment of all national clean air standards within the basin by 1987.

A request for redesignation of the air basin as an “attainment” area for ozone and carbon monoxide has been made to the U.S. Environmental Protection Agency. The formal designation of the Bay Area Air Basin as an attainment area for the federal ozone standard was made in June 1995. The attainment designation for carbon monoxide is expected in the near term. For inhalable particulate matter, the basin is “unclassified” at present, awaiting a possible revision of particulate standards to include only very fine particulate matter. With respect to the state standards, the Bay Area Air Basin is a “non-attainment” area for ozone, and the more stringent state particulate standard[3].

The 1989 California Clean Air Act (AB 2595) requires development of air quality plans and strategies to reduce ozone and carbon monoxide levels in the Bay Area. A Bay Area Clean Air Plan was prepared in 1991, which mandated a five percent per year air quality improvement. Attainment of all California air quality standards in the Bay Area has not yet occurred, since emissions reductions as required by the 1991 Clean Air Plan are partially offset by new emissions from population and industry growth in the basin.

The 1991 Bay Area Clean Air Plan contained specific measures aimed to reduce indirect sources of emissions, including transportation control measures designed to reduce the contribution of the automobile as the single-most important contributor to degraded air quality. Any project which attracts a substantial increase in automobile traffic may have an effect on air quality planning if the associated emissions have not been accounted for in the regional air quality plan.

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[3] BAAQMD CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans, April 1996

In 1994, the Bay Area was redesignated as an attainment area for the State CO standard and thus the Clean Air Act's Planning Requirements for CO nonattainment areas no longer apply. The Bay Area 1994 Clean Air Plan, prepared by the BAAQMD and MTC, has as its main objective, meeting State air quality standards for ozone. The plan presents a comprehensive strategy to reduce auto use and improve air quality.

F. UTILITIES AND PUBLIC SERVICES

This section presents an overview of existing utilities and services in Golden Gate Park, including:

- power, lighting and communications;
- solid waste generation and disposal;
- police and fire protection;
- schools, recreation and other public facilities.

Park water, sewer and drainage systems are addressed in Section I. WATER, SEWER AND STORMWATER DRAINAGE SYSTEMS, starting on page 64.

POWER, LIGHTING AND COMMUNICATIONS SYSTEMS

Electricity and natural gas services are provided to Golden Gate Park by Pacific Gas & Electric Company (PG&E). The Park's electrical service consists of over 40 individual systems of varying age, type and condition that power the various facilities within the Park. As part of the proposed Park Master Plan, existing electrical services are proposed to be upgraded and expanded in order to reduce maintenance requirements and meet future service needs.[1] Proposed electrical system upgrades are typically exempt from environmental review on an individual project basis (see Project Description, Table 6, p. 26), but are included in this EIR for informational purposes and for potential cumulative impacts. Park use of electrical power is described in Section J. ENERGY/NATURAL RESOURCES, p. 175)

The existing Park exterior lighting system is characterized as generally inadequate, antiquated and in need of replacement. Parts of the system considered adequate include the Panhandle, major arterial streets, security lighting on most buildings, and the immediate vicinity of Kezar Stadium, Kezar Pavilion, the Park Maintenance Yard, the Academy of Sciences, de Young Museum, McLaren Lodge, and the Conservatory.[2]

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[1] ACE Pacific Company, *Concept Design Report for Electrical Power Service Systems,* prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994.

[2] Ibid.

Historically, exterior lighting in the Park has been limited primarily to roads and building security. Most Park areas are not intended for night use and therefore have not been lighted or have minimal lighting. Like Park electrical services, Park exterior lighting fixtures, poles and wires vary in age, type and stage of deterioration. Some components are modern and new, while others no longer function at all. Much of the existing exterior lighting system consists of obsolete energy-consuming incandescent fixtures powered from deteriorating underground wires that are not encased. Most major buildings have security lighting, and night use areas such as the Academy of Science and McLaren lodge are lighted in the immediate vicinity of the buildings. However, few access paths and Parking areas are lighted.[3]

Heavily traveled arterial streets are well lighted for safety, generally by high pressure sodium lamps powered by multi-loop (parallel) cables of conduit. Most of the arterial roadway lighting systems are owned by the City of San Francisco and are in good condition. Other parts of the lighting system are owned and/or operated by PG&E and are in bad condition. All light fixtures in the Park will be replaced and will be maintained by the Park Department.[4]

Telephone service is provided by Pacific Bell and is not scheduled for substantial change under the Park Master Plan.

SOLID WASTE GENERATION AND DISPOSAL

Four types of non-hazardous solid waste are generated in Golden Gate Park or brought in by Park users: straw manure (animal waste from stables and buffalo paddock); green waste (plant debris, including shrub and tree prunings); wood waste (tree stumps and logs, wood pallets, etc.); and mixed garbage (including collected litter). Disposal of hazardous wastes is addressed in Section K. HAZARDS, starting on page 176.

Straw manure has historically been, and continues to be collected and composted within the Park to help create and enrich a topsoil layer over the former sand dunes. Increasingly, green waste is also being composted or used for mulch. The Recreation and Park Department has recently acquired a tub grinder capable of shredding and chipping large quantities of plant material (but not logs and stumps). Use of the tub grinder is reducing the volume of solid waste being removed from the Park to landfills.[5] Wood waste from dead or downed trees is generally collected and stored for two to three years in the Park's log storage area, located near the Buffalo Paddock. Periodically, the accumulation is either sold and hauled off-site for reuse, or a contractor with a large chipper is hired to come on-site and chip the logs. In the latter case, wood chips are recycled within the Park as mulch.

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[3] ACE Pacific Company, *Concept Design Report for Exterior Lighting Systems,* prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994.

[4] Shannon Maloney, Department of Public Works, meeting notes, February 27, 1997.

Garbage from Park trash receptacles, routine litter collection, and other maintenance activities is removed for landfill disposal by Sunset Scavenger Company under contract to the Recreation and Park Department. Material is collected on a daily basis directly by Sunset Scavenger workers from trash containers within the Park. In addition, garbage is hauled by Park maintenance workers in the Park's garbage truck to the Sunset Scavenger transfer station at Tunnel Avenue and Beatty Road in San Francisco. Plant material and wood waste that cannot be sold or recycled as described above is generally taken to the transfer station for landfill disposal.

A multi-material (glass, tin, paper, cardboard, plastic, aluminum) recycling center operated by the non-profit Haight-Ashbury Neighborhood Council (HANC) is located on Park property at 780 Frederick Street. HANC offers free pickup service to local businesses, institutions, and apartment buildings in San Francisco. The facility is open daily from 9 a.m. to 4 p.m. for drop off of materials for separation and transfer to a facility in South San Francisco.

POLICE AND FIRE PROTECTION

Police protection in Golden Gate Park is provided by the San Francisco Police Department (SFPD), which operates a district station at Stanyan and Waller Street, on the east end of the Park. Also near the Park is SFPD's Richmond Station on 6th Avenue between Geary Boulevard and Anza Street. Inside the Park, SFPD maintains a horse stable near the polo field to support its mounted Park patrols.

Fire protection and emergency paramedic response in Golden Gate Park is provided by the San Francisco Fire Department (SFFD). Fire stations identified for first response to an emergency in the Park include #14, located at 26th Avenue and Anza Street; #22, located at 16th Avenue and Irving Street; #23, located at 45th Avenue between Irving and Judah Streets; #31, between 12th Avenue and Geary Boulevard; and #34, at 41st Avenue and Geary Boulevard.[6]

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[5] Cooney, Jim, Urban Forestry Section, San Francisco Recreation and Park Department, telephone conversation with Anne Henny, November 7, 1995.

[6] San Francisco Fire Department, Fire Prevention, personal communication with A. Henny, December 5, 1995.

The fire hydrant system in Golden Gate Park is currently fed by a combination of sources. About eight hydrants throughout the Park are currently fed by San Francisco Water Department (SFWD) potable water supplies. Five hydrants in the Music Concourse/Arboretum area are connected to the City's Auxiliary Water Supply System (AWSS).[7] The remaining Park hydrants (about 40 total) are fed by pumped well water stored in Park lakes. Eleven hydrants in the east end of the Park are supplied from the Strawberry Hill reservoir. One hydrant is fed from Spreckels Lake. A series of 28 hydrants along Fulton Street from 22nd Avenue to La Playa is fed from Stow Lake.[8]

Several areas in the Park currently have no nearby fire hydrant protection: the Angler's Lodge, the Pioneer Log Cabin, the east end of the Conservatory and the Tennis Clubhouse.

SCHOOLS, RECREATION AND OTHER PUBLIC FACILITIES

Golden Gate Park does not generate demand for schools or other public facilities, but is itself one of San Francisco's foremost public recreation facilities. The Park and resident institutions such as the Academy of Sciences[9] and Sharon Art Studio provide a wide range of educational and recreational services to City school children, the elderly and the public at large.

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[7] The AWSS is a high-pressure distribution system that provides non-potable water for fire fighting, and is separate from the SFWD potable water supply system. An AWSS pipeline currently runs through the park between Lincoln Avenue and Fulton Street in the vicinity of 9th and 10th Avenues.

[8] *Golden Gate Park Domestic Water Master Plan,* City of San Francisco Department of Public Works, Bureau of Engineering, August 1994.

[9] The Academy of Sciences (and the de Young Museum) are not part of the Park Master Plan because they are not under the jurisdiction of the Recreation and Park Commission. The Academy is mentioned in various sections of this EIR because it is located in the Park and is therefore a part of the Park setting.

G. BIOLOGY AND WETLANDS

OVERVIEW OF SITE CONDITIONS

Golden Gate Park encompasses approximately 680 acres of landscaped forest; 130 acres of meadows, fields, and open areas; 33 acres of artificial lakes and waterways; and numerous miles of paved roads and unpaved trails and paths. Prior to Park development in the 1800s, the area that is now Golden Gate Park was mapped as a "great sand waste" of dunes and unconsolidated sand. Botanists and geomorphologists of the 19th century indicate that San Francisco once supported a unique flora of coast live oak *(Quercus agrifolia)*, California bay-laurel *(Umbellularia californica)*, dwarf horse-chestnut or California Buckeye (*Aesculus californica)*, willow (*Salix lasiolepis)*, and wax myrtle (*Myrica californica).* Within a half century of European colonization, however, deforestation for fuel and timber and overgrazing by livestock destabilized the dunes and lead to sand encroachment.[1] By the time land was purchased in 1870, Golden Gate Park supported only patches of native trees in the eastern quarter of the Park.

Initial landscaping work began in 1871 and included stabilizing sand drifts, extensive grading and draining work, and establishing an on-site nursery. To support cultivated trees, shrubs, and lawns, topsoil was imported from the Peninsula and manure was gathered from the streets of San Francisco to improve the native sandy soils. Artificial lakes, waterways, waterfalls and ponds were constructed using clay and cement to create impermeable surfaces to hold piped water. Redwoods, Monterey pine, cypress, and eucalyptus were planted as windbreaks and to accent lawn and meadow settings. Special planting areas were established and planted with showy floral displays.

Intensive landscaping activities are thought to have displaced native habitats and species; however, evidence exists that wildlife species such as California red-legged frogs successfully re-inhabited landscaped habitats after Park construction.[2] Wildlife species that now inhabit the Park include raccoons and skunks; migrant and resident songbirds, raptors, and waterfowl; sensitive wildlife species such as southwestern pond turtle; and feral domestic animals. Overall habitat suitability for wildlife has decreased in the late 1900's as a result of a variety of factors: predation by and competition with feral animals, lake eutrophication and overall reduction in water quality, removal or degradation of emergent aquatic plants from lakes, and removal of understory shrub and tree vegetation that provided foraging and nesting habitat values. However, as lands around the Park are increasingly urbanized, the importance of Park habitats to dependent wildlife species continues to increase.

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[1] Smith, R.C. *Golden Gate Park Master Plan Draft Background Report-Forest and Wildlife,* March 1994, Prepared for San Francisco Recreation and Park Department. Available for public review at Planning Department 1660 Mission St., Project File No. 95.234E.

[2] Ed Ely, Herpetologist, personal communication with May Consulting on November 28, 1995.

Golden Gate Park's native and naturalized plant species have decreased as the Park has become increasingly landscaped and maintained (in part because screening and undergrowth have been pruned for Park security reasons). Habitat for native and naturalized plant species today occurs only as fragmented patches of indigenous oak woodlands primarily in the east end of the park near Strawberry Hill north of McLaren Lodge, and in de Laveaga Dell, and as remnant patches of annual grassland in undeveloped or unmaintained portions of the Park.

BIOLOGICAL DEFINITIONS

Several terms used in this section have specific meaning pertaining to state and federal laws and policies. These terms are defined below.

1. Sensitive Species. For the purpose of this report, sensitive species are defined to include:

   - species that are listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (50 CFR 17.11 for wildlife, 50 CFR 17.12 for plants; various notices in the Federal Register for proposed species);

   - wildlife that are federal candidates for listing as threatened or endangered (50 FR 554-579, January 6, 1989);

   - plants that are Category 1 or 2 candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (55 FR 6184, February 21, 1990);

   - species that are listed or proposed for listing by the state of California as threatened or endangered under the California Endangered Species Act (California Administrative Code, Title 14, Section 670.5);

   - wildlife species that are designated as fully protected by DFG (California Administrative Code, Title 14, Section 670.5);

   - plants considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered in California and elsewhere (Skinner and Pavlick 1994); and

- plant species that meet the definition of rare or endangered under the California Environmental Quality Act (1970).

2. Important Habitats. For the purpose of this section, important habitats are defined to include habitats that are considered relatively scarce, are vulnerable to elimination, support unique or biologically important plant or wildlife species, or have important ecological functions (e.g., bank stabilization or water filtration).

3. Wetlands. Wetlands are a type of important habitat that may be subject to regulation by the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency, pursuant to Section 404 of the Clean Water Act. Wetlands are defined for regulatory purposes as:

   "...areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated conditions." (33 CFR 328.3, 40 CFR 230.3).

APPROACH TO THE ASSESSMENT

Biological resources of Golden Gate Park were investigated to determine resources that occur in the Park and have potential to be affected by implementation of the Golden Gate Park Master Plan. Information on Park resources was gathered through a review of existing field studies that were performed in support of the reforestation program and lakes rehabilitation project; two records searches of the California Department of Fish and Game's (DFG's) Natural Diversity Data Base (CNDDB),[3] and contacts with knowledgeable gardeners, botanists and bird watchers.

Several plant and wildlife investigations have recently been conducted in support of the Golden Gate Park Master Plan, primarily focused on areas where specific, ground-disturbing activities are proposed in the future (e.g., the lakes rehabilitation project, Park reforestation project). These documents support or augment information presented in this report; conclusions from these documents are hereby incorporated into this document.

Table 23 provides an overview of the contents of each of the supporting biological studies.

Information on common and sensitive species of the Park is well-documented as a result of public interest and official and unofficial site investigations by amateur and professional botanists,

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[3] *California Natural Diversity Data Base,* 1992, 1994, Records search of the San Francisco North US Geological Survey quadrangle.

Table 23: Golden Gate Park Master Plan - Supporting Biological Studies

Document	**Content Summary**
Golden Gate Park Master Plan Background Report: Forest and Wildlife (Smith 1994)	Provides inventory of Park trees, historic setting information on Park resources, and results of field surveys for bird and common wildlife species in Golden Gate Park. Identifies indigenous oak woodlands and important wildlife areas.
Golden Gate Park Lakes Biological Resource Assessment, Phase 1 (Sycamore Associates 1994)	Presents results of reconnaissance level investigation for sensitive wildlife species, maps wildlife habitats, and identifies invasive exotic plants in and around the twelve artificial lakes in Golden Gate Park.
Golden Gate Park Lake Relining Project, Phase II Biological Assessment (Environmental Science Associates [ESA] 1995a)	Presents results of field investigations for western pond turtle and assesses suitable habitat for California red-legged frogs in the twelve artificial lakes in Golden Gate Park.
Letter Report: Red-Legged Frog and Pond Turtle Summer Survey Results for the Golden Gate Park Lake Relining Project (940454). (ESA 1995b)	Presents results of summer survey for California red-legged frogs in lakes with suitable habitat that were identified in the Phase II biological assessment survey.

Source: May Consulting Services

wildlife biologists, ornithologists, and herpetologists. Pertinent information that was reviewed during preparation of this document includes:

- two records searches of the *California Natural Diversity Data Base* for the San Francisco North quadrangle (CNDDB 1992, 1994),
- bird survey of the Strybing Arboretum and Botanical Gardens,[4]
- a two-year bird census by the Audubon Society near the Chain of Lakes and the area west of North Lake conducted by Dan Murphy,[5]
- bird counts conducted during the Christmas season by the Audubon Society from 1970 to present,

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[4] Ridley, A. *Checklist of Birds of the Strybing Arboretum and Botanical Gardens,* Strybing Arboretum Society, Revised January 1988.

[5] Murphy, Dan, *San Francisco Peninsula Birdwatching,* Sequoia Audubon Society, Burlingame, CA. 1984.

- a study of bird frequency and abundance in Golden Gate Park, conducted by Lawrence Binford, Department of Ornithology and Mammology at the California Academy of Sciences, that includes a listing of bird species observed in the Park over the past 70 years,[6]

- an annotated checklist of reptiles and amphibians in the City and County of San Francisco, prepared by B.H. Banta and D. Morafka in 1966, and

- information on resource occurrence provided by ornithologists from the Audubon Society[7], a local herpetologist expert[8], and local representatives from the California Native Plant Society.[9]

The results of the biological resource investigation are presented below.

HABITATS, WOODLANDS, LAKES

Three types of habitat are described for Golden Gate Park: common habitats, special wildlife areas, and important habitats. Each of these habitats is discussed below. Important habitats include oak woodlands and artificial lakes and waterways in the Park.

Common Habitats

Common Park habitats include lawns and meadows, special planting areas, and evergreen landscaped forests of Monterey pine, cypress, eucalyptus, and redwood. Because these areas are heavily utilized by Park visitors and are routinely maintained (landscaped, pruned, fertilized) as part of ongoing Park maintenance, common habitats provide few values to wildlife species. These areas support mostly non-native landscaped plant varieties and therefore are considered to have limited habitat values for native plant species.

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[6] Binford, L.C. *Preliminary List of the Birds of Golden Gate Park, San Francisco,* California Academy of Sciences, unpublished report dated May 1, 1977.

[7] Murphy, Dan, Ornithologist, Audubon Society, Sequoia Chapter, telephone conversation with May Consulting, November 28, 1995.

[8] Ely, Ed, Herpetologist, telephone conversation with May Consulting, November 28, 1995.

[9] Sigg, J., Botanist, member of California Native Plant Society, telephone conversation with May Consulting, December 28, 1995.

Special Wildlife Areas Special wildlife areas include areas of concentrated songbird activity, potential roosting sites for Monarch butterflies, and potential habitat for San Francisco forked-tail damselfly. These habitats do not support federal or state listed species, are relatively abundant in the Park and elsewhere, and do not provide important ecological functions when assessed independently from surrounding habitats. These areas are of interest to the public and to Park planners because they are areas where wildlife species of local interest are concentrated. Park planners have designated such areas as “Wildlife and Habitat Areas” and have adopted policies to maintain wildlife values.

Important Habitats

Important habitats are habitats that support sensitive or unique species, are uncommon locally or regionally, or provide important ecological functions. Important habitats of Golden Gate Park include indigenous oak woodlands and artificial lakes and waterways. The location of important habitats is illustrated in Figure 28.

Indigenous Oak Woodlands Typically, indigenous oak woodlands are dominated by coast live oak, mixed with occasional California bay-laurel, dwarf horse-chestnut, willow, and wax myrtle. Indigenous oak woodlands are considered an important habitat because they support native species and provide browse and mast (a compound of edible material found on the forest floor) for wildlife, as well as dense cover for bird nesting and roosting. Native trees provide seasonal nectar sources for insects and birds and are thought to be important contributors to the Park’s wildlife food supply.[10] Indigenous oak woodlands have been designated by Park planners as “Wildlife and Habitat Areas” (in addition to the “Special Wildlife Areas” discussed above) to be managed for plant and wildlife habitat values. Indigenous oak woodlands do not exist in the Park as intact or typical because the oak woodlands contain numerous eucalyptus trees.

Artificial Lakes, Waterways, Wetlands Artificial lakes and waterways are important components of the Golden Gate Park landscape. Built in stages over the life of the Park, these features are now in a state of deterioration as a result of degradation of the clay liner restricting layer (resulting in substantial water leakage), sediment buildup, shoreline erosion, reduced water quality, and eutrophication. Artificial lakes and waterways provide year-round water for Park wildlife and habitat for resident and migrant waterfowl. Additionally, they provide habitat for numerous fish, amphibians, and reptiles, including southwestern pond

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[10] Smith. S.G., *Golden Gate Park Master Plan, Draft Background Report-Forest and Wildlife,* prepared for the San Francisco Recreation and Parks Department, unpublished report dated March 1994.

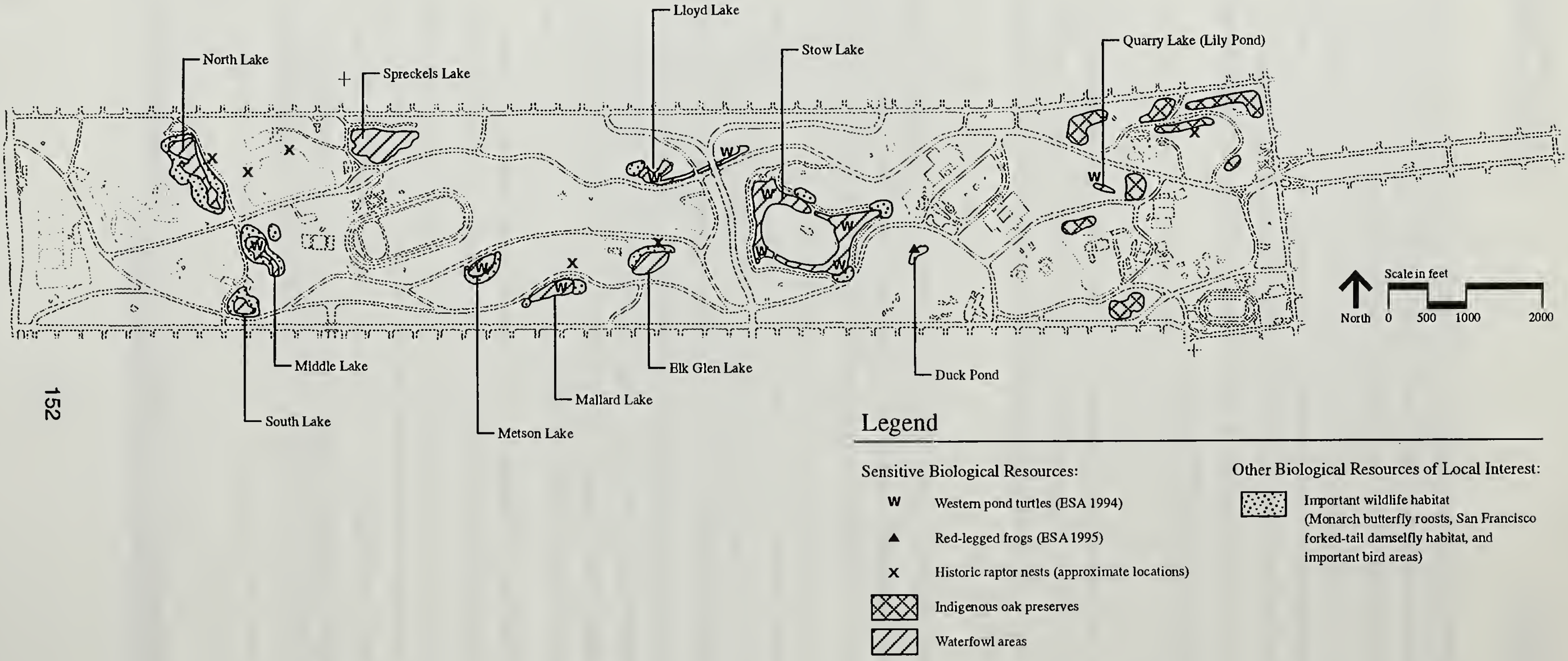
North Lake
Spreckels Lake
Lloyd Lake
Stow Lake
Quarry Lake (Lily Pond)
South Lake
Middle Lake
Metson Lake
Mallard Lake
Elk Glen Lake
Duck Pond
North
Scale in feet
0
500
1000
2000
Legend
Sensitive Biological Resources:
W Western pond turtles (ESA 1994)
▲ Red-legged frogs (ESA 1995)
X Historic raptor nests (approximate locations)
▩ Indigenous oak preserves
▨ Waterfowl areas
Other Biological Resources of Local Interest:
Important wildlife habitat (Monarch butterfly roosts, San Francisco forked-tail damselfly habitat, and important bird areas)

Figure 28

Biological Resources

turtles. Some artificial lakes have been identified as subject to U.S. Corps of Engineers (Corps) jurisdiction under Section 404 of the Clean Water Act.[11] These lakes include Quarry Lake (Lily Pond), North Lake, Middle Lake, South Lake and Mallard Lake. All but Lily Pond are proposed for restoration in the Park Master Plan. Wildlife habitat values vary from lake to lake, with the more important wildlife habitats occurring at lakes with emergent aquatic vegetation, adjacent willows or other shrubs that provide wildlife cover, and lakes that have soil or clay edges.

PLANT SPECIES

Golden Gate Park supports mostly non-native ornamental plant varieties and limited suitable habitat for native and naturalized plant species. The following section identifies common and invasive plant species, as well as sensitive plant species that are known or have potential to occur in Golden Gate Park.

Common and Invasive Plant Species

Typical annual grassland species such as soft chess (*Bromus hordeaceous*), ripgut brome (*Bromus diandrus*), and wild oats (*Avena fatua*) are found intermixed with weedy forbs such as wild geranium (*Geranium molle),* ox tongue (*Picris ecinioides*), wild mustard (*Brassica* sp.), wild radish (*Raphanus sativa*), burr clover *(Medicago polymorpha),* and storksbill (*Erodium* sp.). These species occur sporadically in less-heavily landscaped portions of the Park and as a sparse understory in Park forests.

Several weedy invasive plants are reported in Golden Gate Park, including German ivy (*Senecio macounii*), English ivy (*Hedera helix*), Algerian ivy (*Hedera canariensis*), acacia (*Acacia* sp.), scotch broom (*Cystisus scoparius*), cotoneaster (*Cotoneaster* sp.), and vinca (*Vinca major*), found in the understory of Park forests. In and around the perimeter of Park lakes escaped cultivars and invasive weedy species include yellow water iris (*Iris pseudacorus*), tamarisk (*Tamarix sp.*), black locust (*Robinia pseudoacacia)*, pampas grass (*Cortaderia jubata*), giant reed (*Arundo donax),* and bamboo (*Bambusa* sp.). Some invasive plants (vinca) are used in a controlled landscape setting as ornamental plant treatment.

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[11] Department of the Army, SF District, Corps of Engineers, letter dated June 6, 1995.

Sensitive Plant Species

Based on a records search of the California Natural Diversity Data Base (1994), botanical information collected during reconnaissance investigations of the Park,[12] and results of botanical investigations of the nearby Presidio,[13] the following sensitive plant species were considered to have general potential to occur in Golden Gate Park: marsh sandwort (*Arenaria paludicola*), San Francisco popcornflower (*Plagiobothrys diffusus*), San Francisco campion (*Silene verecunda* ssp. *verecunda*), Presidio clarkia (*Clarkia franciscana*), and San Francisco gumplant (*Grindelia hirsuta* var. *maritima).* However, no sensitive plant species have been actually observed in Golden Gate Park during previous tree surveys or habitat assessments of the Park.[14]

Golden Gate Park lacks suitable serpentine outcrops and serpentine-derived soils from which the Presidio clarkia is reported; therefore, this species is considered to be absent from the Park. Two additional species, marsh sandwort and San Francisco popcornflower are presumed by CNDDB to be extirpated from San Francisco.[15] Limited suitable habitat occurs in the Park for San Francisco campion, San Francisco gumplant, and San Francisco lessingia as remnant sandy patches along the dune-park interface immediately east of the Great Highway. Floristic surveys were conducted in the suitable habitat area in May and August 1996 during the optimum identification period for the targeted plant species (See Appendix C). Despite intensive surveying, no sensitive plant species were located during the May or August survey. Therefore, the potential for species occurrence is considered extremely low, based on the lack of sensitive species, the past disturbances in the Park and the limited amount of remaining native habitat.

WILDLIFE SPECIES

Golden Gate Park provides important habitat for common wildlife species and feral domestic animals, wildlife species of local interest, and sensitive wildlife species.

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[12] Sycamore Associates, *Golden Gate Park Lakes Biological Resource Assessment, Phase I,* prepared for Keller, Citchell, Caronna, Lafeyette, CA. 1994; and Environmental Science Associates, *Golden Gate Park Lake Relining Project, Phase II Biological Assessment,* February 1995.

[13] May Consulting Services, file information on the Presidio of San Francisco, 1995.

[14] Smith, S.G., *Golden Gate Park Master Plan Draft Background Report-Forest and Wildlife,* prepared for San Francisco Recreation and Park Department, unpublished report dated March 1994.

[15] California Natural Diversity Data Base, 1994.

Common Wildlife Species and Feral Domestic Animals

Golden Gate Park supports numerous common wildlife species, including birds, reptiles, and amphibians, as well as mammals such as skunk and opossum. A list of common wildlife species known or presumed to occur in Golden Gate Park is provided as Appendix C.

Due to its proximity to urbanized areas, Golden Gate Park is frequented by feral domestic animals and is an abandonment site for domestic pets. In addition to dogs and cats, numerous other species including fishes, turtles and tortoises, and snakes, have been introduced over the years by Park visitors. Domestic cats are particularly common in Golden Gate Park.

Wildlife Species of Local Interest

Several wildlife species that are uncommon in San Francisco, or that are migrants, pass through Golden Gate Park during winter or spring. Wildlife species of local interest include Monarch butterflies, San Francisco forked-tail damselfly, and migrating songbirds. Although these wildlife species do not have state or federal listed status, they are of interest to the public and of concern to Park managers.

Monarch Butterfly The Monarch butterfly is of local interest because of its restricted distribution and known wintering habitat locations in California. The 1994 California Natural Diversity Data Base identifies two Monarch butterfly roosting sites[16] in Golden Gate Park, both in the vicinity of 41st Avenue. Several suitable roosting sites were identified during reconnaissance habitat assessments for the Park Master Plan near Lloyd, Stow, Mallard, Elk Glen, South, and Middle Lakes [17] (Figure 28). Species occurrence has not been confirmed by biologists at these sites.

San Francisco Forked-Tail Damselfly San Francisco forked-tail damselfly is an uncommon species that was recently under consideration for federal listing, but was found to be too widespread to warrant listing at this time. Several suitable habitat sites have been identified (at Stow, Metson, Mallard, South, Middle, North, Elk Glen, and Lily Pond Lakes) and occurrence of unidentified damselfly species in the Park has been noted; however, presence or absence of the damselfly species could not be concluded.

Songbirds Songbird species are found throughout the Park and are of special interest to local amateur and professional ornithologists. Songbirds are reported to concentrate near water and in areas with dense shrubs for cover and insects and seeds for foraging. An important area of concentration for songbirds is the Chain of Lakes (which incorporates North, Middle, and South Lakes) and upland habitats between the lakes in the far western quarter of the Park (Figure 28). This area is important to songbirds because it provides a diversity of habitat types, including shrubs such as blackberry (*Rubus procerus* and *R. ursinus)* and willows *(Salix lasiolepis*), emergent aquatic vegetation, snags in forests and partially submerged in lakes, and a limited amount of dune-woodland. This area has declined in value to songbirds because of snag removal and clearing of shrubs and underbrush conducted as part of ongoing Park maintenance activities.[18]

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[16] A "roosting site" is a place where species congregate.

[17] Sycamore Associates *Golden Gate Park Lakes Biological Resource Assessment, Phase I,* 1994.

Sensitive Wildlife Species

The geographic area of Golden Gate Park has potential to support six sensitive wildlife species: red-legged frog, southwestern pond turtle, California black rail, bank swallow, willow flycatcher, and peregrine falcon. Of these species, bank swallow lack suitable cliff and rock outcrops, and is considered absent from the Park. Infrequent sightings of peregrine falcon and willow flycatcher are reported; however, these species do not breed or forage regularly in the Park. Suitable lake habitat does occur for California black rail; however, the species has not been reported in the Park.

Golden Gate Park does have habitat supportive to the southwestern pond turtle and California red-legged frog (though no frogs have been reported present since the 1970's), and provides important foraging and nesting habitat for raptors and wintering and resident waterfowl species. These species meet the definition of sensitive (i.e., are listed under federal or state law; are identified by the Department of Fish and Game as species of concern; or are protected or regulated by state or federal law or policy, such as the Migratory Bird Treaty Act). A description of these species is provided below, along with habitat association. Generalized locations of these wildlife resources are provided in Figure 28, page 152.

Southwestern Pond Turtle Southwestern pond turtle is a candidate for federal listing and a California species of concern. The species is highly aquatic, leaving the water only to bask on rocks or logs or to deposit eggs along the banks of the waterway or in adjacent uplands up to 0.25 to 0.30 mile from water.[19] The southwestern pond turtle favors water bodies with rocks and logs and emergent aquatic vegetation that provides escape cover and basking sites.[20]

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[18] Murphy, Dan, telephone conversation with May Consulting, November 28, 1995.

[19] Sycamore Associates, *Golden Gate Park Lakes Biological Resource Assessment, Phase I,* 1994.

[20] Stebbins, R.C. *California Amphibians and Reptiles,* University of California Press, Berkeley, CA. 1972.

A focused survey for the species was conducted in Golden Gate Park by Environmental Science Associates biologists on October 8, 1994. During this survey, 25 southwestern pond turtles were located at seven lakes in Golden Gate Park: Lily Pond, Stow, Lloyd, Metson, Mallard, and Middle Lakes and Rainbow Falls Pond. One dead turtle was found at Metson Lake, and suitable habitat was identified at North Lake, although the habitat is considered marginal due to the presence of a predator carp population in North Lake.

California Red-Legged Frog The California red-legged frog was listed as a threatened species under the Endangered Species Act on June 24, 1996, and is a California Species of Special Concern. The species is associated with ponded habitats (including stream pools, wetlands and stock ponds) with emergent and submergent vegetation. The recent listing of the Red-Legged Frog places requirements on local public agencies to initiate consultation with federal agencies (Corps of Engineers and US Fish and Wildlife Service) to approve or permit a project that could affect the species or habitat.

California red-legged frogs are thought to have established in Golden Gate Park from historical populations near 9th and Lincoln. In the 1960s, red-legged frogs were commonly observed in Stow Lake, along the Chain of Lakes, in the Arboretum pond, and in waterways that meander through the Japanese Tea Garden.[21] Adult frogs are known to rest on land in habitat that is cool and moist, such as rodent holes or cracks in the soil up to 0.25 mile from ponds.[22] In Golden Gate Park, adult frogs have been reported to have hibernated under flower pots in the Arboretum nursery during the harsh 1976-77 winter.[23] A 1994 California Natural Diversity Data base records search revealed historical (1966) records of occurrences of red-legged frogs in Lloyd and Stow Lake, but no occurrences have been recorded at those lakes since 1966.

A focused survey of red-legged frog occurrence was conducted in 1995 for the lakes rehabilitation project.[24] No frogs were found in the survey, however the record search revealed that red-legged frogs now persist only in one pond located in the Arboretum, although suitable emergent aquatic vegetation was observed at numerous other lakes and waterways in the Park.[25] The absence of this species from Park water bodies may be a result of predation by animals (e.g., fish, red-eared sliders, and other exotic turtle species) introduced into water bodies, and by common wildlife species (raccoons, bullfrogs, egrets, and great blue herons). A decline in lake water quality and subsequent eutrophication also may have contributed to the disappearance of the species.

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[21] Ely, Ed, Herpetologist, telephone conversation with May Consulting, November 28, 1995.

[22] Jones & Stokes, *Special Status Reptile and Amphibian Conceptual Mitigation Plan for the Los Vaqueros Project,* February, 1993.

[23] Ely, telephone conversation with May Consulting, November 28, 1995.

[24] Environmental Science Associates, *Golden Gate Park Lake Relining Project, Phase II, Biological Assessment,* February 1995.

Migrant and Resident Waterfowl

Waterfowl are of concern to state and federal resource agencies and are protected under the federal Migratory Bird Treaty Act (16 USC 703-711). Lakes in Golden Gate Park provide important habitat to a large number and variety of waterfowl, including both resident and migrant species. Lakes of importance to waterfowl include Mallard, Elk Glen, Stow, Spreckels, Metson, South, Middle, and North Lakes. Most of these lakes experience traditional patterns of waterfowl use, with flocks of a single species congregating at certain lakes and species movement between lakes. The entire lake system is considered an integrated habitat unit for waterfowl. Waterfowl feed on seeds of aquatic vegetation, aquatic invertebrates, and food provided by Park visitors.[26]

Raptors

Raptors are protected under the federal Migratory Bird Treaty Act (16 USC 703-711). Raptor nests are also given special protection under the California DFG Code (Section 3503.5).

The San Francisco peninsula is located along an important migratory route for raptors flying from as far north as Washington to as far south as Baja, Mexico.[27] Numerous raptor species are reported to forage in Golden Gate Park, including great horned-owl, red-tailed hawk, red-shouldered hawk, and barn owl. Infrequent sightings have been reported of peregrine falcon, a species that occasionally migrates through the Park.[28]

Golden Gate Park also supports raptor nesting sites. Because raptors nest throughout the Park and may nest in different locations from year to year, it is not possible to determine the exact location of raptor nests in any given season. However, because raptors often return to a nest site year after year, the generalized location of historical great-horned owl and red-tailed hawk nests are presented in Figure 28, page 152. Nest information is not provided for red-shouldered hawks or barn owls because nests of these species are numerous and occur throughout the Park. There are no records of peregrine falcons nesting in Golden Gate Park.

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[25] Environmental Science Associates, *red-legged Frog and Pond Turtle Summer Survey for the Golden Gate Park Lake Relining Project,* letter report dated August 15, 1995.

[26] Sycamore Associates, *Golden Gate Park Lakes Biological Resource Assessment, Phase I,* 1994.

[27] Smith, S.G. *Golden Gate Park Master Plan Draft Background Report-Forest and Wildlife,* unpublished report dated March 1994.

[28] Dan Murphy , Ornithologist, Audubon Society Member, Sequoia Chapter, telephone conversation with May Consulting, November 28, 1995.

H. GEOLOGY AND TOPOGRAPHY

GEOLOGY

Golden Gate Park is located within the Coast Ranges geologic province which is characterized by a northwest trending series of ranges and valleys. The Park is underlain primarily by Holocene eolian dune sands with some localized areas of artificial fill. These surficial deposits are underlain by the Colma Formation. The Colma Formation ranges up to 400 feet thick below the Park and consists of unconsolidated moderately well sorted, fine-to medium-grained sand and silty sand with scattered clay beds ranging from 6 inches to 5 feet thick. The dune sands are loose and may be easily excavated. The Park and the general vicinity was the site of active sand dune fields until the urbanization of San Francisco in the mid-nineteenth century. The dune sands deposits vary in thickness and may be as much as 80 feet deep.[1]

Artificial fill, which may have been used to fill ravines or depressions and create berms during the course of Park and roadway development, is present at various locations. The artificial fill generally consists of dune sand but may contain silt, clay rock waste, man-made debris, and organic waste.

Scattered outcrops of the Franciscan Complex are present in the central and eastern portion of the Park. One of the most significant of these outcrops is Strawberry Hill. Geologists A. C. Lawson described Strawberry Hill as “a chert knob rising abruptly in the sand wastes” Detailed mapping by Scholocker indicates that Strawberry Hill consists of sandstone, greenstone, chert, and shale of the Franciscan Complex overlain in some areas by dune sand, slope deposits, and artificial fill.

Sandstone of the Franciscan Complex is generally thickly-bedded and massive graywacke interbedded with thin layers of shale and fine-grained sandstone. When fresh, the sandstone is hard and medium-gray in color. Deeply weathered sandstone is pale orange, friable and crumbles under finger pressure. Greenstone of the Franciscan Complex consists of aphanitic fine-grained to medium-grained altered volcanic rock. This includes flows, dikes, sills, plugs agglomerate, tuff, and pillow lavas. Chert of the Franciscan Complex is generally found in layers 1 to 5 inches thick alternating with shale. The chert, which can also be found in massive, unbedded bodies, is generally grayish red, hard, brittle, and fractured. The shale layers are brittle and crumbly.

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[1] Geo/Resource Consultants, Inc., Geology, Groundwater, and Recycled Water Working Paper for the Golden Gate Park Master Plan, February 22, 1993.

Slopes in the Park are generally not very steep, are underlain by well drained sandy soils, are well vegetated, and are not prone to slope stability problems, such as landslides and raveling. Park personnel indicate that slope stability issues have not been a historical problem within the Park.[2] Due to the nature of the dune sands that underlie a great portion of the Park, slope stability problems that may arise in the future would most likely be only small, localized slumps or debris flows.

SEISMICITY

The Golden Gate Park is located within a seismically active region. Active faults which have generated moderate to strong earthquakes within the Bay Area include the San Andreas, the Seal Cove-San Gregorio, Hayward, Calaveras, Rogers Creek, Green Valley, Concord and the Greenville faults (see Figure 29). The San Andreas Fault is located about nine miles west of the City, the Hayward Fault about 10 miles northeast of the City, and the Calaveras Fault about 30 miles east of the City.

The strongest earthquake in the Bay Area during historic times was the 1906 earthquake on the San Andreas Fault, which was estimated to be approximately 8.3 on the Richter scale. Significant damage to various buildings within Golden Gate Park was reported. The October 17, 1989 Loma Prieta earthquake occurred on the Santa Cruz subsegment of the San Andreas Fault about 60 miles southeast of the City and had a magnitude of 7.1. The US Geological Survey (USGS) estimates that there is a 23 percent chance of an earthquake with a magnitude of 7.0 occurring along one of the three active segments of the San Andreas Fault within the next 30 years.

It is more likely that the project area would experience a high magnitude earthquake originating along the North Hayward fault than along any other fault line in the area during the 1990-2020 period. The USGS reports that a 7.3 magnitude earthquake along the North Hayward Fault has a 28 percent probability of occurring during this period, while the Peninsula segment of the San Andreas fault and the South Hayward fault have a 23 percent probability of experiencing a 7.1 earthquake by 2020. Ground shaking as a result of an earthquake on one of these faults would vary considerably around San Francisco, depending on factors such as distance from the fault, the underlying soils, and the topography of the area. The Park project area would likely experience a low to moderate intensity of ground shaking (level VI to VII on the Modified Mercalli scale) resulting in moderate to heavy non-structural damage to the Park.[3]

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[2] Huttinger, John, SFRPD, personnel communications and GeoResources, November 25, 1992

[3] Association of Bay Area Governments, On Shaky Ground, 6/17/96 (from the Internet at Http://www.abag.ca.gov)

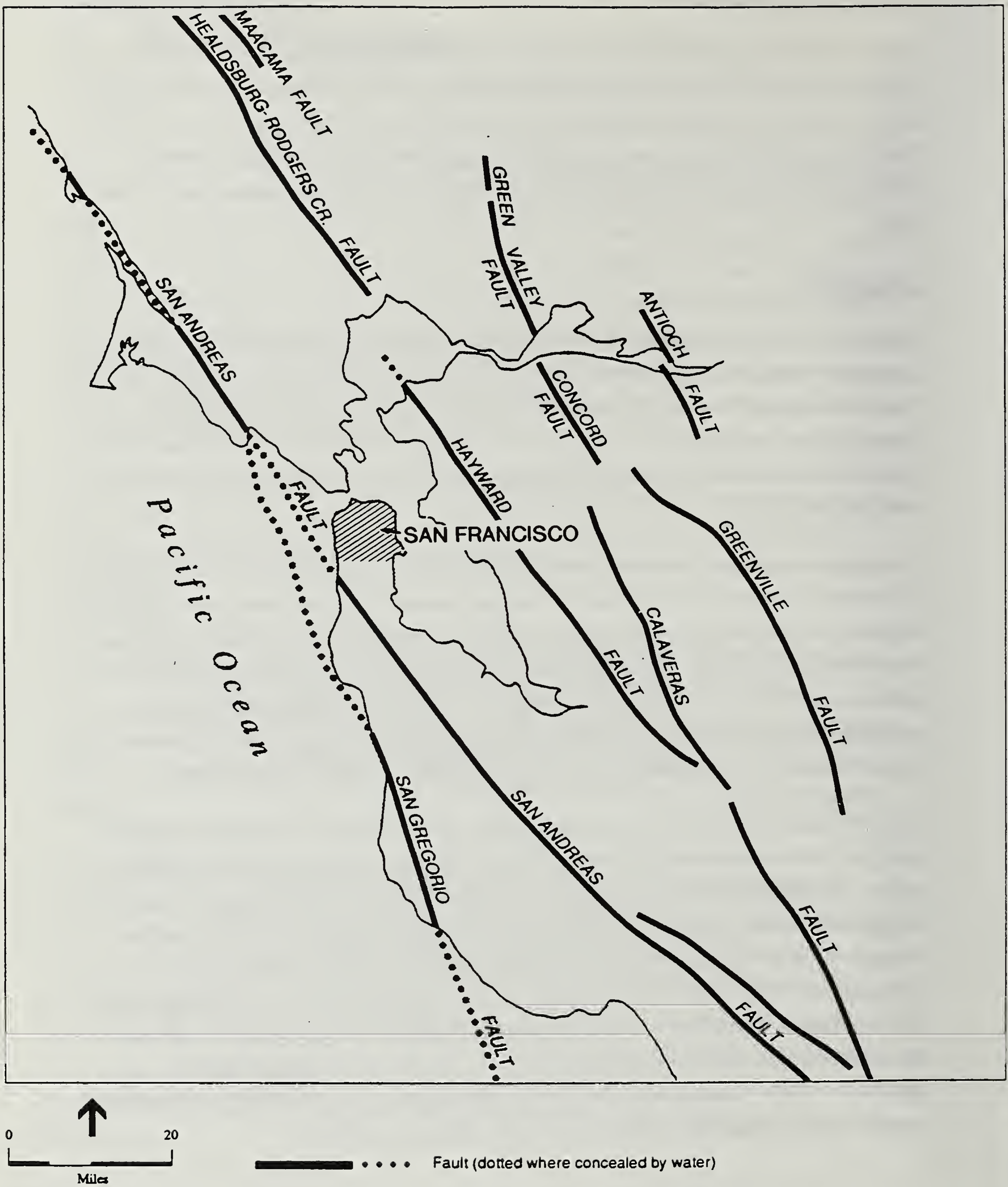

Figure 29
Regional Fault Ma

The only fault that runs through the Park is the City College Fault, which is not considered active by the California Division of Mines and Geology. Table 24 shows the distances, maximum credible earthquakes, creep rates and activity ratings of potential significant faults in the project area. The City College Shear Zone trends northwest to southeast, parallel to the San Andreas Fault. This zone extends from Lincoln Park southeastward to San Francisco Bay near the Bay shore. Much of this shear zone has no surface expression, and is projected beneath dune sands and alluvial sediments. The fault zone appears to affect only the bedrock and separates the rocks of the Great Valley Sequence in the San Bruno belt from the rocks of the Franciscan Complex in the Central Highlands belt to the east.

The Park is not located within a fault-rupture hazard zone delineated by the Alquist-Priolo Special Studies Zones Act. The City College fault crosses the Park approximately one mile from the coast, between the Elk Glen well and the Windmill wells. Since this fault is not considered active by the California Division of Mines and Geology, the risk of fault rupture of the ground surface is considered to be low.[4] The San Bruno Fault parallels the San Bruno Mountains and passes through Lake Merced in the northwesterly direction. It is not considered active and has shown no micro-earthquake activity indicative of building strain.

LIQUEFACTION

Liquefaction occurs when a saturated cohesionless soil, such as sand, is subjected to a shock and experiences an increase in pore water pressure. The soil loses a substantial amount of strength and may collapse. Potential consequences of liquefaction include the loss of bearing capacity, differential settlement and lateral spreading. These conditions can cause serious building foundation failures and naturally buoyant structures such as underground storage tanks could raise above ground. Liquefaction more commonly occurs in looser, saturated materials such as the fill or sand described above. Dense to very dense sand such as dune sand is less susceptible to liquefaction. Liquefaction was not reported in the vicinity of the Park during the 1906 or the 1989 earthquakes. The effective depth limits of the mechanisms of liquefaction have not been determined. In general, however, depths shallower than 30 to 40 feet may be considered at risk for liquefaction. Based on the approximate depths to groundwater in the Park, portions of the Park that may be at risk for liquefaction are found west of North Lake. Densification, subsidence and differential compaction could also occur in loose to medium dense sands whether saturated or not.

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[4] Ibid. Geo/Resource Consultants, Inc., 1993.

TABLE 24: DISTANCES, MAXIMUM CREDIBLE EARTHQUAKES, CREEP RATES AND ACTIVITY RATINGS OF POTENTIAL SIGNIFICANT FAULTS IN THE PROJECT AREA

Fault Zone	Distance from Project Area (miles)	Maximum Credible magnitude (Richter)	Creep Rates (mm/yr)	Activity Classification	References
San Andreas	3	8.3	12.2 ± 3.9	Active /a/	Page 1982, Working Group on California Earthquake Probabilities 1990
Calaveras	14	7.3	5.3	Active /a/	Greensfelder 1974, working Group on California Earthquake Probabilities 1990
Hayward	20 /b/	7.0	6.0 /c/	Active /a/	Siemmons & Chang 1982
Seal Cove - San Gregorio	6	/d/	/d/	Active	CDMG, 1992
City College	0	/d/	/d/	Inactive/e/	CDMG, 1992
San Bruno	0	/d/	/d/	Inactive/e/	CDMG, 1992

/a/ Active = Holocen (≤ 11 thousand years offset)
/b/ The portion of the Hayward Fault near the project area is not active
/c/ In Alameda County
/d/ None given
/e/ Considered Inactive

SOURCE: Geo Resources Consultant, Inc.

TSUNAMIS

Tsunamis (seismic sea waves) are long period waves that are caused by underwater disturbances (landslides), volcanic eruptions, or distant seismic events. Areas that are highly susceptible to tsunami inundation tend to be located in low lying coastal areas such as tidal flats, marshlands, and former Bay margins that have been artificially filled but are still at or below sea level. In 1972, a determination of the areas surrounding San Francisco Bay that might be inundated was calculated based on an assumed tsunami run-up of 20 feet at the Golden Gate.[5] Ocean Beach, the Great Highway, and portions of the Park immediately adjacent to the Great Highway may be at risk of inundation by a tsunami. If a tsunami were to occur at maximum high tide, the effects of tsunami inundation could impact a larger area, to an elevation approximately 20 feet higher than high tide.

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[5] Ritter, J.R., and Dupre, W.R., Map showing areas of potential inundation by Tsunamis in the San Francisco Bay Region, California: USGS Basic Data Contribution #52, Sheet 1.

I. WATER, SEWER AND STORMWATER DRAINAGE SYSTEMS

This section describes existing water use, quality, supply and distribution systems in Golden Gate Park. Park sewer and stormwater drainage systems are also described. Technical reports and memorandum referenced are available for review in the project file No. 95.243E, available at the Planning Department, 1660 Mission Street, San Francisco.

SEWER AND DRAINAGE SYSTEMS

Existing Park sewer and stormwater drainage systems have been in existence since the 1930's. Mechanisms in use include sanitary sewer lines, catch basins connected to sumps, catch basins that are connected to pipes that daylight in forested areas, catch basins connected to lakes, and landscaped area percolation. The existing stormwater drainage system in Golden Gate Park includes approximately 230 catch basins that are typically five to six feet deep and connect to French Drains, which are containers that allow the water to percolate into the ground and return water to the aquifer below. Some of the catch basins currently allow untreated storm runoff to drain into Park lakes, including Elk Glen. Others receive pollutant runoff from heavily traveled roadways. Catch basins, sumps and sewers need more frequent maintenance than they presently receive in order to operate properly.[1]

Park sewer lines are both gravity and forced-main types, which flow into the City of San Francisco's combined sanitary/ stormwater sewer system. The Park's two major force-mains are located in de Laveaga Dell and Sharon Meadow; these deliver sanitary and stormwater runoff flows to the City system at Lincoln Avenue and Stanyan Street, respectively.[2] Although sewer pipes and pumps inside the Park are in acceptable condition (expected to last 20-30 more years), they are generally of inadequate size to handle combined dry and wet weather flows. At two locations -- a septic system at the Section Six Yard in the west end of the Park, and a sewer line that runs from Lincoln Way and 30th Avenue to Fulton Street and 26th Avenue -- sewage is known to be leaching directly into the ground, potentially affecting groundwater quality.[3]

Sewer and stormwater drainage systems in several areas of the Park have been identified by the San Francisco Department of Public Works as requiring repair, replacement and redesign to divert storm water to the City sewer system. Leaking lines have been listed for replacement under the 1992 Rehabilitation Bond Work. The Maintenance Yard is a paved site where Park maintenance vehicles are serviced, stored and fueled. Stormwater runoff from this site, which could contain industrial pollutants, is delivered to the City sewer system. The Nursery and the Conservatory are two Park sites where fertilizers and other chemical contaminants are stored or used in substantial quantities. Stormwater runoff from both the Nursery and the Conservatory is presently delivered to the City sewer system.

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[1] City and County of San Francisco Department of Public Works, Bureau of Engineering, Golden Gate Park Sewer and Drainage System Master Plan, prepared for San Francisco Recreation and Parks Department, August 1994.

[2] King, Gordon, City and County of San Francisco Department of Public Works, Bureau of Engineering, Project Management Division, Memo Dated December 12, 1995.

[3] City and County of San Francisco Department of Public Works, Bureau of Engineering, Golden Gate Park Sewer and Drainage System Master Plan, prepared for San Francisco Recreation and Parks Department, August 1994.

Sewage and stormwater flows from the Urban Forestry Yard currently feed into a non-functional sewer line, from which they are believed to percolate into the ground through breaks in the line. The Compost Area currently has one catch basin, which is connected to the old secondary effluent feed line for the former McQueens Treatment Plant. That line is capped at the Urban Forestry Yard, and breaks in the line allow the drainage from the Compost Area to partially flood Middle Drive West, from where it drains into Elk Glen Lake and potentially into groundwater.[4]

PARK WATER USE OVERVIEW

About 75 percent (763 acres) of Golden Gate Park is irrigated.[5] Most of the water used in Golden Gate Park is for landscape irrigation and replenishment of lake water lost to leakage and evaporation. The lakes require continual replenishment, because their water levels are not naturally maintained by natural inflow from streams, springs or precipitation.

In 1994, water use in Golden Gate Park averaged an estimated 1,770,000 gallons per day (gpd), as shown in Table 25 below. During the peak demand month (July), the average gpd increases to an estimated 3,000,000 gallons per day[6]. About 1,735,000 gpd or 98% of that total was for irrigation and lakes. Water for domestic use and firefighting averaged about 35,000 gpd, or about two percent of total Park water use. Groundwater accounted for about 81% of total Park water consumed in 1994; the balance was potable water supplied by the San Francisco Water Department (SFWD). All of the water used for Park lakes replenishment, and about 74% of the water used for Park landscape irrigation, is groundwater pumped from Park wells. Roughly 26% of the water used for Park irrigation in 1994 was from the potable city supply.

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[4] King, Gordon, City and County of San Francisco Department of Public Works, Bureau of Engineering, Project Management Division, Memo Dated December 12, 1995.

[5] Geoconsultants, Inc., Task I Hydrogeologic Services - Geological and Geophysical Survey for Water Well Location, Golden Gate Park, San Francisco, California, prepared for Ace Pacific Company, December 23, 1994.

[6] City and County of San Francisco, Executive Summary Draft Recycled Water Master Plan, Sept. 1995 revised 1996, Table 2-1.

TABLE 25: Estimated 1994 Golden Gate Park Water Use by Source

Park Water Source and Use	Gallons Per Day	Acre-Feet Per Year	Percent of Total
Groundwater for Irrigation	875,000		
Groundwater for Lakes Replenishment	560,000		
Groundwater for Fire Fighting	N/A		
Total Groundwater	1,435,000	1,057	81%
SFWD Water for Irrigation	300,000		
SFWD Water for Domestic Uses and Fire Fighting	35,000		
Total Potable Water	335,000	247	19%
Total Reclaimed Water for Irrigation	0	0	0%
Existing System Total Water Use	1,770,000	1,304	100%

Source: King, Gordon, City and County of San Francisco Department of Public Works, Bureau of Engineering, Project Management Division, Memo Dated January 16, 1996.

The volume of water used in Golden Gate Park is not precisely known because wells are not metered and SFWD use is metered only on a monthly basis.[7] Levels of use may vary considerably from season to season, and from year to year depending on climate, precipitation and other factors. The estimates for 1994 were obtained by using the metered usage of potable water as a base, and extrapolating to determine the approximate amount of groundwater used to irrigate the Park. Well water replenishment figures were obtained by actual measurement of the leakage from each lake over a period of time. All of the water leaking from Park lakes is assumed to eventually recharge the aquifer. Other sources of groundwater recharge in the Park include irrigation water, leakage from sewer and stormwater drainage facilities, and precipitation. The amount of water reaching the aquifer from these sources is not known. It is estimated that approximately 49 percent of water from these sources, predominantly irrigation, goes to recharge the aquifer.[8]

Recycled water (first raw sewage, later treated sewage) was used as a component of Park irrigation water from the early 1900s until 1982, when new state regulations requiring tertiary treatment of wastewater compelled the Recreation and Park District to rely solely on groundwater and City water sources.[9] As part of the City's proposed Water Recycling Master Plan (1992), treated water from a proposed tertiary treatment facility proposed for location at the San Francisco Zoo near Fleishhaker pool would be used for irrigation at selected sites.[10] If this proposed project is implemented, tertiary-treated wastewater would replace groundwater and SFWD supplies as the main source of Park irrigation water after approximately 2002. This and other changes are proposed for Park water supply and distribution systems are described under ENVIRONMENTAL IMPACTS, beginning on p. 252.

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[7] ACE Pacific Company, Concept Design Report for Irrigation Water Supply System, prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994.

[8] Hui, Mickey, City and County of San Francisco, Department of P.U.C., USGS WRI 93-4019.

[9] Geoconsultants, Inc., Task I Hydrogeologic Services - Geological and Geophysical Survey for Water Well Location, Golden Gate Park, San Francisco, California, prepared for Ace Pacific Company, December 23, 1994.

INTERNAL PARK WATER SYSTEM

Supplied by pumped groundwater, the Park's internal water system has been an economical source of irrigation and lake water since the Park's inception. Although groundwater supplies are potentially sufficient to meet Park irrigation needs, the existing infrastructure (wells, pumps, reservoirs and pipe systems) is not capable of delivering the groundwater to all areas of the Park and at all times it is needed. According to the Park Master Plan, two major problems exist. The first is lack of adequate storage capacity to serve some areas of the Park. The second is low water pressure in some areas of the Park because of dependence on gravity flow to distribute the water to landscaping.[11]

According to Park Master Plan background studies, the existing wells, pumps, and pipelines that comprise the Park's internal water system are generally deteriorated and in need of replacement.[12] Reservoir storage capacity and water pressure are inadequate to serve the eastern portion of the Park in particular. The quality of some Park well water is degraded by algal growth and debris from being stored in the Park's uncovered reservoirs and lakes. Additionally, the existing system is not designed to incorporate the use of recycled water for irrigation.[13]

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[10] City and County of San Francisco, Planning Department , San Francisco Recycled Water Master Plan and Groundwater Master Plan Draft Environmental Impact Report, 92.371E, November 1996.

[11] San Francisco Recreation and Park Department, Golden Gate Park Draft Master Plan, March 1995, p.9-1.

[12] Concept *Design Report for Irrigation Water Supply System,* by ACE Pacific Company under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994.

[13] ACE Pacific Company, Concept Design Report for Irrigation Water Supply System, prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994.

GROUNDWATER BASINS

Seven groundwater basins underlie San Francisco, and Golden Gate Park is located over portions of two of them. A majority of the Park is over the Sunset portion of the Westside Groundwater Basin; all existing and proposed Park wells pump from this basin. The northeast portion of the Park, excluding the Panhandle, is part of the Lobos Creek Basin. These two groundwater basins are separated within Golden Gate Park by a northwest trending bedrock ridge.[14]

The Westside Basin is San Francisco's largest groundwater basin: approximately two miles wide and 11 miles long (extending five miles southeast of the city limits). Within Golden Gate Park, the aquifer ranges from less than 100 feet to approximately 400 feet thick. Groundwater production in the Park is primarily from layers of sandy sediments of the Colma Formation, which lies over bedrock of the Franciscan Complex and Great Valley Sequence. Outcrops of Franciscan Complex bedrock occur in a few areas, including Strawberry Hill.

The water-bearing Colma Formation principally consists of unconsolidated fine grain sands and silty sands with scattered clay beds up to five feet thick.[15] The aquifer materials of the Colma Formation reach their maximum thickness within the Park (about 350 to 400 feet) beneath the vicinity of the Bison Paddock and Fly Casting Pool, and are thinnest in the vicinity of the Arboretum. In the central and western portions of the Park, the Colma Formation is overlain by sand dune deposits, which reach their maximum thickness (about 130 feet) close to the Great Highway. Within the Park, groundwater has historically occurred within the more unconsolidated materials, dune deposits and the Colma Formation, where sands and gravels predominate. Groundwater production from bedrock formations is generally limited, but is greatest in the sandstones and greenstones where fracturing has occurred.[16]

Recharge to the Westside Basin is from rainfall, irrigation return-flow, sewer and water pipe and lakes leakage, and groundwater inflow from adjacent basins. The U.S. Geological Survey (USGS) has reported that, except for high nitrates in some wells, water in the Westside Basin is generally of good quality. Based on mineral chemical analysis for all of the Park wells, except Arboretum No. 4, the USGS concluded that Park groundwater tends to have a composition resulting from the mixing of rainfall, irrigation return-flow, and leaking water and sewer pipes.

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[14] City and County of San Francisco, Planning Department, San Francisco Recycled Water Master Plan and Groundwater Master Plan Environmental Impact Report, DEIR, November 11, 1996.

[15] Geo Resource Consultants, Golden Gate Park Master Plan Background Report: Geology, Groundwater, and Recycled Water, prepared for San Francisco Recreation and Park Department, March 1993.

[16] Geoconsultants, Inc., Task I Hydrogeologic Services - Geological and Geophysical Survey for Water Well Location, Golden Gate Park, San Francisco, California, prepared for Ace Pacific Company, December 23, 1994.

Groundwater quality is also affected by chemical interaction with sediment properties in the aquifer. The most likely sources of nitrate are seepage from sewers and irrigation return-flow.[17] Park well water is considered "non-potable" (not fit to drink) and is not filtered or treated before use in irrigation and lakes.

The Westside Groundwater Basin has relatively high permeabilities and groundwater flow rates. Because it is a single groundwater basin, pumping or recharge in one area can affect water levels in other areas.[18]

WELLS, PUMP STATIONS AND STORAGE FACILITIES

Groundwater for Park irrigation is currently pumped from six of eight operating Park wells and stored in three small, concrete-lined reservoirs (North Mill, Strawberry Hill and Waterworks) and two lakes (Elk Glen and Stow). Well pumps are generally operated eight hours per day on weekdays during the summer, and intermittently as needed during the remainder of the year. Well water production is not metered, but yields have been estimated based on a soil moisture algorithm and USGS measurements taken in 1988 and 1989.[19]

If run continuously, the six wells currently operated out of the total number of operational Park wells would be capable of yielding an estimated 3,750 gallons per minute (gpm) or 5.4 million gallons per day (mgd), well above the estimated peak period irrigation requirements (about 3 mgd). However, the wells are not operated continuously due to maintenance requirements and lack of water storage capacity. Four of the wells are over 65 years old and considered in poor condition due to age and corroded casings. Several of the well pumps are also reaching the end of their useful lives.[20] The Park's three reservoirs have a combined capacity of about 890,000 gallons, supplemented by 17,400,000 gallons of lake storage capacity feeding the irrigation systems.[21]

The 640,000-gallon reservoir on Strawberry Hill, in conjunction with Stow Lake, is used as the Park's principal irrigation water storage system. Located at the highest elevation in the Park, the concrete-lined, open reservoir on Strawberry Hill receives water pumped from four of the six active Park wells. Overflow from the Strawberry Hill reservoir is used to fill Stow Lake, and water for irrigation is withdrawn by gravity flow from both Strawberry Hill reservoir and Stow Lake. Portions of the Park that require irrigation at night (the Buffalo Paddock and golf course) are supplied by overflow from Stow Lake, by allowing water to backflow through the pipelines from the North Mill area wells.[22]

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[17] Geo Resource Consultants, Golden Gate Park Master Plan Background Report: Geology, Groundwater, and Recycled Water, prepared for San Francisco Recreation and Park Department, March 1993.

[18] Ibid.

[19] Ibid.

[20] San Francisco Recreation and Park Department, Golden Gate Park Master Plan Environmental Evaluation, Draft dated May 5, 1994.

[21] King, Gordon, City and County of San Francisco Department of Public Works phone conversation December 7, 1996.

Elk Glen well, drilled in 1982 in the central part of the Park, is the Park's major water producer and is in good condition. Elk Glen well water is first pumped into Elk Glen Lake, and from there it is pumped to the Strawberry Hill reservoir. Three of the Park's six active wells are in the western end of the Park: South Windmill, drilled in 1926; North Windmill East, drilled in 1929; and North Windmill West, drilled in 1960. The North Windmill wells discharge into a 100,000-gallon reservoir covered with a sheet metal roof, and from there the water is pumped to the Strawberry Hill reservoir for storage and distribution. South Windmill well water is pumped directly to the Strawberry Hill reservoir for storage.

Two active wells in the eastern end of the Park, Arboretum #4 and #5 (drilled in 1926 and 1925, respectively), discharge into Waterworks reservoir, a 150,000-gallon, unroofed concrete tank. Water is either pumped from the Waterworks reservoir into the irrigation pipeline system, or may be pumped to the Strawberry Hill reservoir.[23] Overflow from Stow Lake can also flow to Waterworks Reservoir to supplement irrigation flows in the eastern part of the Park.[24]

The Park's two inactive wells, Alvord and Arboretum No. 6, are both in the eastern end of the Park. Arboretum No. 6 was drilled in 1993, but never put into operation due to low water production.[25] Alvord was drilled in 1984 and when it operated, it flowed directly into the Park's east side irrigation system.[26] It is envisioned to be used as a well water reserve for irrigation in the future.[27]

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[22] Geo Resource Consultants, Golden Gate Park Master Plan Background Report: Geology, Groundwater, and Recycled Water, prepared for San Francisco Recreation and Park Department, March 1993.

[23] Geoconsultants, Inc., Task I Hydrogeologic Services - Geological and Geophysical Survey for Water Well Location, Golden Gate Park, San Francisco, California, prepared for Ace Pacific Company, December 23, 1994.

[24] Geo Resource Consultants, Golden Gate Park Master Plan Background Report: Geology, Groundwater, and Recycled Water, prepared for San Francisco Recreation and Park Department, March 1993.

[25] Geoconsultants, Inc., Task I Hydrogeologic Services - Geological and Geophysical Survey for Water Well Location, Golden Gate Park, San Francisco, California, prepared for Ace Pacific Company, December 23, 1994.

[26] Geo Resource Consultants, Golden Gate Park Master Plan Background Report: Geology, Groundwater, and Recycled Water, prepared for San Francisco Recreation and Park Department, March 1993.

[27] Leamer, Deborah, San Francisco Recreation and Park Department, phone conversation on December 12, 1996.

PIPELINE DISTRIBUTION SYSTEM

The Park's main water pipelines are four or more inches in diameter and are cast iron with caulked (rigid) joints. Those of smaller diameters are galvanized steel, which Park personnel have observed to be badly corroded and in need of replacement. The cast iron pipes are in fair condition but there may be considerable leakage from caulked joints. Many of the valves are old and in poor condition, and many pipelines are undersized for projected needs. No comprehensive accurate maps of the existing Park internal water system pipelines are in existence as lines were added over a series of years and were not accurately recorded.[28]

PARK LAKES

The lakes in Golden Gate Park are in various stages of eutrophication, or lake decay resulting from nutrient enrichment. Eutrophication is generally associated with heavy algal growth, loss of lake circulation, poor water quality, and sedimentation from shoreline erosion and runoff. Aquatic plants require nitrogen and phosphorus, and their growth can be controlled if these nutrients can be limited. Because nitrogen is difficult to limit, lake rehabilitation effort generally focuses on control of phosphorus (phosphate) from fertilizer, waterfowl and animal wastes, and decay of other organic material. Once nutrients are in the water, their adverse effects can be reduced by circulating, diluting and exchanging the water. Water exchange involves continuous replacement, or flushing, of lake water with cleaner (low nutrient) water.[29]

Except for Elk Glen, which originally averaged 7.2 feet in depth, Park lakes were constructed to shallow depths (generally less than five feet) and have accumulated sediments up to 35 inches thick. Due to their shallowness, which is conducive to algal growth, and lack of adequate circulation, Park lakes have generally poor visual water quality (are murky). Aquatic wildlife and bird populations contribute to nutrient loads in the lake water. In addition, storm drainage runoff flows into Park lakes, carrying with it erosion sediments, debris, gardening residues, and possibly fertilizers, automobile oil products, and animal wastes. Stow, Spreckels, Mallard and Lily Pond have poor visual water quality; Elk Glen and South Lakes are clearer. Testing performed as part of Park Master Plan background studies found that lake waters and sediments are non-hazardous.[30]

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[28] San Francisco Recreation and Park Department, Golden Gate Park Draft Master Plan, March 1995, p.9-1.

[29] ACE Pacific Company, Concept Design Report for Lakes Rehabilitation, prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994.

Lakes in the Park, constructed as landscape features, require water replenishment because most do not receive enough precipitation or natural inflow to offset evaporation and leakage. At present, due to various factors including age and deterioration of clay liners (in those lakes that originally had them), lakes in the Park are leaking at an estimated rate of approximately 560,000 gallons per day (gpd), or 388 gallons per minute (gpm). North, Elk Glen and Middle lakes together account for about 77 percent of total lake leakage, and North Lake alone leaks at a rate of over 215,000 gpd. Over time, the water leaking through lake bottoms percolates through the soil to recharge the groundwater basin which, in turn, supplies the Park wells.[31]

Replenishment of lake water lost to leakage and evaporation occurs partially from direct rainfall and runoff into the lake basins, but mainly from pumped well water.[32] Lake replenishment, like Park irrigation, is controlled primarily by visual observation and manual controls. To maintain lake levels, water is pumped from Park wells into the storage reservoirs, from where it is allowed to flow by gravity to the lakes as needed. In the case of Elk Glen, well water is pumped directly from the well into the lake.

Most of the lake water exchange occurring at present is a by-product of lake leakage and replenishment. Compared to a flow-through process, in which fresh (low-nutrient) water would enter one end of a lake and exit the other, the existing process does not effectively offset the nutrient-concentrating effects of evaporation. Only Stow, Elk Glen and Middle Lakes have active outlets and receive substantial flows of well water. The other lakes have no active outlets and their levels are monitored and maintained manually. The present (1994) rate of lake leakage, about 388 gpm, represents an approximation of the existing rate of well water replenishment to the lakes (with the exception of Elk Glen and Stow Lakes, which benefit from irrigation water flow-throughs).

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[30] ACE Pacific Company, Concept Design Report for Lakes Rehabilitation, prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994.

[31] Ibid.

[32] STO Design Group, Inc., Golden Gate Park Lake Rehabilitation Water Exchange Criteria, prepared for ACE Pacific Company, August, 1995

PARK USE OF POTABLE WATER

Existing domestic water supply systems in the Park are described in the *Golden Gate Park Domestic Water Master Plan,* prepared by the City of San Francisco, Department of Public Works in 1994. The plan maps and inventories existing domestic water lines, including line number, name, function (irrigation, plumbing, etc.), condition (where known), proposed improvements, and costs. The existing system has been developed incrementally over the years, resulting in some blending of the irrigation, fire hydrant and potable water systems.[33]

As previously noted, all of the water for Park domestic uses and approximately 25 percent of Park irrigation water, is potable municipal water supplied by San Francisco Water Department. Areas currently irrigated by SFWD water include the Conservatory, Rose Garden and Japanese Tea Garden. The potable water used for Park irrigation (about 300,000 gpd) enters the Park through a series of metered SFWD service connections at the periphery of the Park (Lincoln Avenue, Fulton Street, Oak Street and Transverse Drive). A backflow prevention device is installed at each of these connections in accordance with State and City Heath Department regulations to prevent reversal of flow from the Park irrigation system.[34]

SFWD water comes principally from the Hetch Hetchy system, a City-owned series of reservoirs, aqueducts, and hydroelectric plants that capture and convey water (mostly Sierra snow melt) from the Tuolumne river watershed into storage reservoirs. The Hetch Hetchy system provides up to 300 mgd to water users in the Bay Area and the City of San Francisco. About 15 percent of the SFWD water supplied for City drinking water is from local watersheds and 85 percent is from the Hetch Hetchy system.[35]

Fire protection water for the Park is supplied from three systems: Park wells (either direct to hydrants or via Stow Lake), SFWD domestic water, and the City of San Francisco's Auxiliary high pressure Water Supply System (AWSS). In the case of a fire emergency, the three systems would be operated by SF Fire Department. Fire protection systems are discussed in more detail in section F. UTILITIES AND SERVICES, starting on p. 142.

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[33] Golden Gate Park Domestic Water Master Plan, City of San Francisco Department of Public Works, Bureau of Engineering, August 1994.

[34] ACE Pacific Company, Concept Design Report for Irrigation Water Supply System, prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994.

[35] City and County of San Francisco, Planning Department, San Francisco Recycled Water Master Plan and Groundwater Master Plan Environmental Impact Report, DEIR, November 11, 1996.

J. ENERGY/NATURAL RESOURCES

Existing Park facilities (buildings, well and lake pumps) use electric power provided by Pacific Gas & Electric Company. The electric power system in the Park is described Section F. UTILITIES AND PUBLIC SERVICES, p. 142. The peak average kilowatt hours used by Park facilities totals about 1,034,292 kilowatt hours (kwhrs).[1] Park facilities using over 10,000 peak average kwhrs include: McLaren Lodge and Annex, the Maintenance yard, tennis court clubhouse and lawn bowling clubhouse; the County Fair Building and Hall of Flowers; the Huntington Falls Pump; the Urban Forestry Center; and the North Windmill. The de Young Museum and Asian Art Museum are not addressed because they are not Park properties; they are owned and operated by the Fine Arts Commission.

Much of the exterior lighting in the Park is obsolete, energy consuming incandescent fixtures. Some fixtures are mercury vapor and high pressure sodium lamps.

An unquantified amount of diesel fuel and other petroleum products are also consumed by Park maintenance equipment and vehicles.

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[1] Ace Pacific, Golden Gate Park Electrical Power Load Data, October 1995.

K. HAZARDS

This section presents an overview of the hazardous materials/wastes regulatory framework and existing conditions in Golden Gate Park that could be affected by proposed Park Master Plan projects. Information is principally based on previous analysis and documentation provided by the project sponsor, the San Francisco Recreation and Park Department.

DEFINITION OF A HAZARDOUS MATERIAL/WASTE

Hazardous materials/wastes are generally considered to be substances with certain chemical or physical properties which may pose a substantial present or future hazard to human health or the environment when improperly handled, stored, disposed or otherwise managed. In general, discarded, abandoned, or waste-like hazardous materials are referred to as hazardous wastes. A material is hazardous waste if it poses a threat to human health or the environment.[1] Hazardous materials and hazardous wastes are defined in the *California Code of Regulations*, Title 22, Sections 66260 through 66261.10. As defined in Title 22, hazardous materials are grouped into four general categories: toxic (causes human health effects); ignitable (has the ability to burn); corrosive (causes severe burns and damages materials); or reactive (causes explosions and generates toxic gases). A hazardous waste can be present in a liquid, semi-solid, solid, or gaseous form.

REGULATORY FRAMEWORK

Hazardous materials and hazardous wastes are controlled by federal, state, regional and local regulations, with the objective of protecting public health and the environment. In general, these regulations provide definitions of hazardous substances; establish reporting requirements; set guidelines for handling, storage, transport, remediation and disposal of hazardous wastes; and require health and safety provisions for both workers and the public. Sites that comply with hazards regulations are identified on periodically-updated lists at the federal, state, and local levels.

Agencies enforcing these regulations in San Francisco include: the U.S. Environmental Protection Agency (federal); the Department of Toxic Substances Control, California Environmental Protection Agency (state); the California Regional Water Quality Control Board (state); the Bay Area Air Quality Management District (regional); the San Francisco Department of Public Health, Bureau of Toxics, Health and Safety Services (local); and the San Francisco Fire Department.

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[1] California Code of Regulations, Title 22, Section 66261.2.

Appendix D presents a description of the major hazardous materials/wastes regulations and the agencies implementing them.

SITE HISTORY

Golden Gate Park was constructed in the late 1800's on previously-undeveloped land, and, other than sewage treatment plants[2] has not historically contained major industrial, commercial or other land uses typically associated with the generation of hazardous materials and hazardous waste.[3] Potential for exposure of people or the environment to hazardous materials or wastes is therefore inherently low in Golden Gate Park because of its historic use for public recreation and open space. However, hazardous materials have been used in the construction of some older buildings and infrastructure within the Park. Materials commonly used in older buildings that may pose public health hazards include asbestos, electrical equipment such as transformers and fluorescent light ballasts that contain polychlorinated biphenols (PCBs), fluorescent lights containing mercury vapors, and lead-based paints. Asbestos and lead paint have been identified in past Park building rehabilitation projects, including at the Conservatory (Rose House demolition) and the County Fair Building (ceiling)[4].

Potential for exposing workers or the public to hazardous materials would be determined by the project sponsor through further site specific testing during project development. Building surveys would be completed for any structures slated for renovation or construction activity. Prior to commencing renovation or construction activity, any hazardous materials identified by the site specific testing would be abated in accordance with Title 8, Section 5208 of the California Administrative Code.

Potentially hazardous materials/wastes may have entered some Park soils and lake sediments from a variety of sources, including the use of fertilizers, herbicides and pesticides; accidental spills; or illegal dumping by individuals. Park utilities, including electrical power transformers, may contain materials that could be hazardous if improperly managed.

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[2] Neither of the sewage treatment plants in the park (McQueens and Richmond Sunset) are operating. McQueens is the present site of the Urban Forestry Center. Richmond Sunset was closed in Sept. 1993 when the Westside Treatment Plant (located adjacent to the San Francisco Zoological Gardens) started operation, and the property proposed to be returned to parkland in 1996.

[3] An exception is the California Academy of Science, identified on the federal Resource Conservation and Recovery Act (RCRA)-mandated list of generators of hazardous waste materials. The Academy of Science has not been recorded as having polluted the environment. No physical or operational changes are proposed for the Academy of Science and this facility is not part of the Park Master Plan.

[4] San Francisco Recreation and Park Department, Golden Gate Park Master Plan Environmental Evaluation, Draft dated May 5, 1994.

If hazardous materials are present at any of the Park Master Plan project sites, special measures may be required to protect human health and the environment during demolition or construction work, and specific handling and disposal methods may also be required for excavated soil.

Known Lead and Asbestos Containing Materials at Golden Gate Park

Lead and asbestos have been identified in or on several Park facilities, and in some cases has been removed or contained during renovation or demolition work. Lead paint has been identified within the Conservatory of Flowers (throughout), the Angler's Lodge (public bathrooms), and the Polo Fields bathrooms.[5] All painted buildings constructed prior to 1970 are likely to have lead containing paint perhaps below layers of other paints. As long as surfaces remain in good condition this is not regarded as a problem. Asbestos has been identified in Golden Gate Park facilities listed in Table 26 below.

TABLE 26: Known Asbestos-Containing Materials In Golden Gate Park Facilities

Facility	Material	Location
Arboretum Head House	Transite wall and roof panels	Throughout
Beach Chalet	Pipe insulation	Abandoned pipe over stairwell
Conservatory of Flowers	Transite Pipe insulation Insulation	Boiler flue Boiler room Boiler room
County Fair Building	Fireproofing Pipe insulation	Throughout on ceilings Throughout
Kezar Pavilion	Insulation Duct insulation Pipe insulation	Boilers in basement Furnace on first floor Throughout
McLaren Lodge (old)	Duct insulation Insulation Pipe insulation	Ventilation system (basement) Boilers in basement Throughout
Nursery	Transite panels Insulation	Throughout Boiler flue on first floor, boiler and piping in basement
Source: "Notice to Employees/Tenants: Asbestos in Recreation and Park Facilities for Period Beginning August 1, 1995," prepared by Hillary Stoermer, Assistant Industrial Hygienist, San Francisco Recreation and Park Department.		

Computerized Record Search: One-Mile Radius from Elk Glen Well

In Spring of 1995, as part of the environmental analysis for the San Francisco Recycled Water Master Plan and Groundwater Master Plan, a computerized record search for hazardous waste issues was undertaken.[6] The computerized search included published federal, state and regional records and lists of known or suspected hazardous materials and waste locations within a one-mile radius of Elk Glen Well, centrally located in Golden Gate Park approximately 1,000 feet southwest of Stow Lake. Thus, this search covered approximately one-third to one-half of Golden Gate Park's area.

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[5] Draft "Summary of Known Lead-Containing Materials at Recreation and Park Department Facilities as of October 31, 1995," prepared by Hillary Stoermer, Assistant Industrial Hygienist, San Francisco Recreation and Park Department.

[6] City and County of San Francisco, Planning Department, San Francisco Recycled Water Master Plan and Groundwater Master Plan Environmental Impact Report technical file, November 1, 1996

The computerized record search identified 27 facilities within one mile of Elk Glen Well that are on the federal Resource Conservation and Recovery Act (RCRA)-mandated list of generators of hazardous waste materials. One of these, the California Academy of Science, is within Golden Gate Park; hazardous materials in use at that location are alcohol (highest quantity of use), an underground diesel fuel tank, lubricants, and paints.[7] The Academy is a privately owned and operated facility not under Recreation and Park Commission jurisdiction. The other listed sites were outside of the Park.[8]

The computerized record search for the Elk Glen well site identified one site inside Golden Gate Park that is listed on the California Regional Water Quality Control Board's Leaking Underground Storage Tank (LUST) list. The LUST facility is approximately one-half mile from Elk Glen Well at the Conservatory, where some soil was affected by a petroleum hydrocarbon leak. Evaluation and treatment of this problem is described below. Outside of the Park boundaries are two LUST gas station sites along 19th Avenue where soil has been affected by petroleum spills, 0.3 and 0.5 miles from Elk Glen Well.

PREVIOUS HAZARDOUS MATERIALS ABATEMENT

Conservatory of Flowers Fuel Tank Containment (October 1987)

An approximately 6,000-gallon underground heating oil tank is located behind the main Conservatory building. In 1987 the tank was cleaned, filled with concrete, sealed and abandoned in place by Harding Lawson Associates under contract to the San Francisco Department of Public Works, Bureau of Construction Management (DPW/BCM). Soil samples taken from the level of the bottom of the tank prior to abandonment work did not indicate leakage of petroleum hydrocarbons and no further site investigation or cleanup was required in accordance with Regional Water Quality Control Board guidelines. Abandonment was recommended due to difficulties of tank removal, including potential for failure of an adjacent 30-foot retaining wall. Groundwater was not encountered during the work.[9]

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[7] Brennen, Joe, Operations Director, Academy of Sciences, phone conversation December 12, 1996.

[8] City and County of San Francisco, Planning Department, San Francisco Recycled Water Master Plan and Groundwater Master Plan Environmental Impact Report, technical file, November 1, 1996

County Fair Building Restrooms Asbestos Abatement (January, 1994)

Asbestos in the County Fair Building restroom was abated in conjunction with 1994 renovation work. Asbestos containing materials were found in the ceiling and pipe insulation during the restroom renovation. Abatement and disposal of materials was conducted in accordance with guidelines and standards set forth in the City's Master Asbestos Specifications.[10]

Conservatory of Flowers Pipe Insulation Asbestos Abatement (January, 1994)

Under contract to the DPW/BCM, Marcor of California abated and properly disposed of asbestos-containing pipe insulation on steam lines along exterior walls of the Conservatory dome room, east wing, and west wing. Soil beneath the pipes was decontaminated. Work was performed in accordance with guidelines and standards set forth in the City's Master Asbestos Abatement Specifications.[11]

Conservatory of Flowers Rose House Lead-Based Paint Abatement (September 1994)

The Rose House (greenhouse for the Rose Garden) was severely damaged by the 1989 Loma Prieta earthquake and required demolition. As part of the work, the loose and peeling lead-based paint within the structure and lead-contaminated soil on the adjoining grounds were abated by Marcor of California, under contract to DPW/BCM.[12]

Conservatory of Flowers Boiler Room Asbestos Abatement (May 1995)

Under contract to the DPW/BCM, Bluewater Environmental Services abated and properly disposed of approximately 95 linear feet of asbestos-containing thermal insulation and repaired damaged asbestos-containing boiler insulation in the Conservatory of Flowers. Work was performed in accordance with guidelines and standards set forth in the City's Master Asbestos Abatement Specifications.[13]

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[9] Tsutsui, Bruce A., Hazardous Materials Program Manager, City and County of San Francisco, Department of Public Health, "Certificate of Completion" dated March 28, 1988 for in-place abandonment of underground storage tank at the Conservatory, Golden Gate Park.

[10] Stoermer, Hillary, Asst. Industrial Hygienist, San Francisco Recreation and Park Department, phone conversation on December 11, 1996.

[11] RGA Environmental, Incorporated, "Asbestos Abatement Monitoring Report, Conservatory of Flowers - Boiler Room Abatement, San Francisco, California," November 7, 1995.

[12] Glenn R. Cass, SCA Environmental , Inc., letter dated September 20, 1994, to Tom Anderson, San Francisco Department of Public Works, Bureau of Construction Management.

POTENTIAL FOR SOIL CONTAMINATION IN GOLDEN GATE PARK

In general, Golden Gate Park would be expected to have low potential for soil contamination since it was developed on mostly-unsettled sand-dunes. However, soil contamination has been identified in several locations, mostly in association with structures. Soils in the vicinity of the Conservatory of Flowers is known to be contaminated by lead-based paint chips to levels defined as hazardous waste.[14] Other areas of contamination that have not been identified may exist due to unauthorized dumping of hazardous wastes, spills of hazardous materials or accumulation of pesticide or fertilizer residues.

HAZARDOUS MATERIALS HANDLING DURING PARK OPERATIONS

A number of potentially hazardous materials are presently handled by Park staff in the operation and maintenance of Golden Gate Park. Materials such as paints, solvents, fertilizers, pesticides and fuel for machinery and vehicles are used in day-to-day Park operations and maintenance activities.

The Park's potentially hazardous materials are stored at Recreation and Park Department Maintenance Yard on Martin Luther King Junior Drive and are registered with the City and County of San Francisco, Department of Public Health (DPH). As of November 1995, registered hazardous materials stored at the Maintenance Yard include 554 gallons of liquids, 4,134 pounds of solids and 28,168 cubic feet of compressed gases.[15] All vehicle fuels are stored in underground tanks (replacement tanks were installed in 1996)[16] Among the facilities in the Maintenance Yard that store hazardous materials are:

- an electrical shop (e.g., moisture repellent, degreaser, coating);
- an ironwork shop (e.g., oils, paints and enamels, acetylene gas);

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[13] RGA Environmental, Incorporated, "Asbestos Abatement Monitoring Report, Conservatory of Flowers - Boiler Room Abatement, San Francisco, California," November 7, 1995.

[14] Stoermer, Hillary, Assistant Industrial Hygienist, San Francisco Recreation and Park Department, personal communication, October 31, 1995.

[15] City and County of San Francisco, Department of Public Health, Bureau of Toxics, Health & Safety Services, Hazardous Materials Division, "Hazardous Materials Registration Certificate," CCSF/Rec & Park/Maintenance, April 28, 1995 - April 28, 1997.

[16] Mock, Chuck, staff, Golden Gate Park Maintenance Yard, telephone conversation, March 3, 1997.

- a paint shop (e.g., paints, resin, solvent, sealer, cleaning agents, catalyst, varnish and stain, pool chlorine, floor finish, rust remover, etc.);
- a roofing shop (e.g., roof coating, roof cement, liquid propane);
- a carpenter shop (e.g., adhesives, resins, vehicle fuel and oil);
- a stationary engineers shop (e.g., lubricating oil, vehicle fuel, oxygen and acetylene gas);
- a plumbing shop (e.g., oils, plastic pipe cement);
- a sheetmetal shop (e.g., propane, oxygen and acetylene gas);
- an auto repair shop (e.g. antifreeze, vehicle fuels and oils; paints, solvents, adhesives, asbestos)
- a main warehouse/storeroom (e.g., cleaning agents, floor wax, tree sealer, oxygen and acetylene gas);
- a pesticide storage area (e.g., insecticides, herbicides, rodenticides, snail and slug bait, fungicides, algacide, soil fumigant, fertilizers);
- a hazardous waste storage shed (used motor oil, empty paint cans, etc., from other city Parks as well as Golden Gate Park).

When properly handled, stored, disposed and otherwise managed, these materials are not considered hazardous to workers or the public. Each of the Maintenance Yard Shops has, or is preparing, an emergency response plan as required by the San Francisco Health Code and State regulations. The Maintenance Yard as a whole has an emergency response/evacuation plan on file with DPH.

In addition to receiving emergency response training, Park maintenance and operations workers are trained by the Recreation and Park Department Industrial Hygienist regarding sites of known hazardous materials in the Park, and the proper routine handling of hazardous materials such as pesticides and illegally dumped wastes (see below). Standard Operating Procedures manuals have been developed for the Park's Pesticide Spray Program and Infection Control Program.[17]

HAZARDOUS WASTE DUMPING IN GOLDEN GATE PARK

Hazardous wastes illegally dumped in the Park are handled according to specific procedures. Items such as motor oil, paint and batteries, if discovered in relatively small quantities, are collected by Park maintenance workers and deposited in the Maintenance Yard hazardous waste storage shed. Other hazardous waste materials are reported to the Industrial Hygienist, who calls

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[17] Stoermer, Hilary, Assistant Industrial Hygienist, San Francisco Recreation and Park Department, personal communication, October 31, 1995.

DPH for collection and proper disposal. Materials dumped include medical wastes (needles, syringes, vials of blood, etc.), asbestos, unknown solvent, cupric sulfate, ammonium hydroxide, and chloroethane. Reports of dumped wastes in Golden Gate Park requiring DPH removal occur approximately every four months on average.[18]

CITY OF SAN FRANCISCO EMERGENCY RESPONSE PLAN

Objectives and policies regarding emergency operations within the City and County of San Francisco are found in the Community Safety Element of the *San Francisco General Plan.* Objective 3 is to "Ensure the protection of life and property from the effects of fire or natural disaster through adequate emergency operations preparation." Under this objective are the following policies:

Policy 1	Maintain a local agency for the provision of emergency services to meet the needs of San Francisco.
Policy 2	Develop and maintain viable, up-to-date in-house emergency operations plans, with necessary equipment, for operational capability of all emergency service agencies and departments.
Policy 3	Maintain and expand agreements for emergency assistance from other jurisdictions to ensure adequate aid in time of need.
Policy 4	Establish and maintain an adequate Emergency Operations Center.
Policy 5	Maintain and expand the city's fire prevention and fire-fighting capability.
Policy 6	Establish a system of emergency access routes for both emergency operations and evacuation.
Policy 7	Provide continuing public education regarding emergency procedures.

The Mayor's Office of Emergency Services is responsible for coordinating the Emergency Operations Plan (EOP) for the City and County of San Francisco. The EOP emphasizes flexibility in responding to an event such as major earthquake or/and fire. To allow for flexible response, emergency access/evacuation routes, casualty collection points, assembly areas, etc. are not pre-assigned in the EOP. In the event of a major emergency, these would be designated as needed by authorized emergency personnel according to the nature, severity and location of the event. While it is possible that the Park could be used for evacuation or emergency operations, no roadways or areas within Golden Gate Park are specifically designated by the EOP for emergency response use.[19]

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[18] Ibid, November 1, 1995.

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[19] Hedleston, Carl, Emergency Services Coordinator, Office of Emergency Services, City and County of San Francisco, telephone conversation, November 8, 1995.

L. CULTURAL RESOURCES

This section presents an overview of Park history; historic preservation regulations and criteria for determining the historic value of structures; known historic/architectural resources in Golden Gate Park; and the potential for discovering buried prehistoric or historic archaeological deposits within the Park. A key resource for the information presented in this section of the EIR is the "Buildings and Structures Inventory" completed by Carey and Company as background information for the Draft Park Master Plan, dated March, 1995, and available for review in the project file No. 95.243E, at the Planning Department, 1660 Mission Street, San Francisco. This background report emphasized building conditions and architectural values but did not evaluate buildings against National Register or other formal historic eligibility criteria.

HISTORIC PRESERVATION REGULATIONS AND CRITERIA

In general, an historic building or structure is one that is listed, or eligible for listing, on the National Register of Historic Places, or is designated as historic under state or local guidelines. Buildings and structures may be considered architecturally significant if they are prototypes or outstanding examples of a period, style, architectural movement or method of construction; or if they are the most notable works, or best surviving work, in a given region.

National Register of Historic Places

The National Register of Historic Places is the nation's official list of buildings, structures, objects, sites, and districts worthy of preservation. Among the benefits of National Register status are eligibility for federal grant funding, tax credits and deductions, and use of the State Historic Building Code, a more flexible alternative to the San Francisco Building Code.[1] Two buildings in Golden Gate Park are on the National Register: the Conservatory of Flowers and the Beach Chalet. The Alvord Lake Bridge is a National Historic Civil Engineering Landmark. The Golden Gate Park Panhandle is under evaluation as a Cultural Landscape for designation on the National Register. The Japanese Tea Garden was determined eligible for the National Register as a landmark during a seismic study by the Federal Emergency Management Agency.

State Historic Preservation Regulations

The California State Historic Resources Commission and the Office of Historic Preservation (SHPO) administer California's historic preservation programs. The California Register of

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[1] State of California Office of Historic Preservation, Department of Parks and Recreation, "National Register Fact Sheet." Properties designated as historically significant by state, county or city registers or inventories may also be subject to the State Historic Building Code.

Historical Places, administered by SHPO, is an authoritative inventory of the state's historical resources. It includes properties which are listed or are eligible for listing in the National Register of Historic Places, State Historical Landmarks, and eligible Points of Historical Interest. A historical resource may be listed in the California Register if it meets any of the following criteria:

- it is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- it is associated with the lives of persons important in California's past;
- it embodies the distinctive characteristics of type, period, or method of construction, or represents the work of an important creative individual, or possesses high artistic value; or
- it has yielded, or is likely to yield, information important in prehistory or history.

Other properties, including resources designated under local ordinances, may be nominated for inclusion in the California Register.[2] Review by SHPO is required when federal funds are used for a project and/or if the building has an official local, state, or federal status or is eligible for the National Register.

Local Historic Preservation Regulations

Article 10 of the San Francisco Planning Code contains local regulations for the preservation of historical, architectural and aesthetic landmarks, and includes the City's list of Designated Landmarks and Historic Districts. It also recognizes "Structures of Merit," which are not designated as historic landmarks or situated in a historic district, but have historical, architectural or aesthetic qualities worthy of enhancement and protection (Section 1011).

Article 10 of the Planning Code also created the Landmarks Preservation Advisory Board (Landmarks Board). The Landmarks Board is a nine-member body appointed by the Mayor that advises the Planning Commission regarding designation of landmarks and historic districts, and makes recommendations on proposed alterations to buildings that are identified as architecturally and/or historically significant through the Landmarks Board Approval of a Certificate of Appropriateness (CofA).[3]

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[2] Governor's Office of Planning and Research, CEQA and Historical Resources , CEQA Technical Advice Series, April 1994.

[3] Buildings are primarily identified as significant pursuant to Article 10 and 11, and may also be identified as significant in one or more inventories such as the 1968 Here Today survey, the 1976 Citywide Architectural Survey, the General Plan

Many of the City Landmarks in Article 10 were identified in the 1974-1976 Citywide Architectural Survey, conducted by the San Francisco Planning Department. Under the Citywide Architectural Survey, about ten percent of the City's buildings were awarded a rating for architectural merit ranging from a low of "0" to a high of "5". Factors considered included architectural significance and urban design context. The survey is informational and does not constitute a list of designated resources.

The Citywide Architectural Survey included buildings in Golden Gate Park and rated each building for its:

- relationship with surrounding buildings
- architectural design valuation
- cornice, parapet, appendage
- facade condition
- overall architectural quality

A similar survey was also conducted in 1968 by the Junior League. Survey results are documented in a publication entitled "Here Today – San Francisco's Architectural Heritage" (Chronicle Books). The "Here Today" survey was adopted by the Board of Supervisors in Resolution No. 268.70.

HISTORIC/ARCHITECTURAL RESOURCES IN GOLDEN GATE PARK

Numerous facilities and structures have been built in Golden Gate Park since its inception, some of which have since been relocated, demolished or destroyed. At present, there are approximately 34 structures in Golden Gate Park (excluding the de Young Museum, Asian Art Museum, California Academy of Sciences, monuments, and Park restroom facilities). Of these 34 structures, seven are identified as local Landmarks, 18 are identified by the Golden Gate Park Master Plan as "contributing" to historic character of the Park and the remaining nine structures are identified as "noncontributing"[4] (see Table 27 below). The Millwright's House is not a City Landmark or Structure of Merit. However, it is closely associated with Murphy's Mill (South windmill) which with the North (Dutch) windmill, are considered "structures of merit" (a list of structures recognized and encouraged for protection, enhancement and perpetuation) under Article 10 of the SF Planning Code. (The two windmills are also listed in "Here Today").

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of the City and County of San Francisco, the resources of preservation groups such as Heritage, the California State Register and the National Register of Historic Places.

[4] San Francisco Recreation and Park Department, Golden Gate Park Draft Master Plan, "Buildings and Structures Inventory," March 1995, pp. 8-4 through 8-5.

TABLE 27: Historic and Architectural Resources

Local Landmark No.	National Register of Historic Places	Here Today	PD 1976 survey	Misc.	Structure	Location
#50 1972	√ 1972	√	√	Cal. Hist. LM	Conservatory of Flowers (1878)	JFK Drive/Conservatory Drive
#96 1977					Francis Scott Key Monument	East end of Music Concourse
#124 1981	Determined Eligible	√	√		Sharon Building (1888)	Children's Playground/Kezar Drive
#175 1984		√	√		McLaren Lodge (1896)	Stanyan Street/JFK Drive
#147 1981		√	√	Local Structure of Merit	North (Dutch) Windmill (1902)	JFK Drive near Great Highway
#201 1991			√		Park Emergency Hospital (Emergency Aid Station) (1902)	Stanyan Street near Frederick
#181 1986					Bowling Green Clubhouse (1915)	Bowling Green Drive
#179 1985	√ 1981	√	√		Beach Chalet (1925)	Great Highway
NA	National Historic civil engineering Landmark America's First reinforced concrete bridge				Alvord Lake Bridge (1889)	Kezar Drive west of Haight Street
		√		Local Structure of Merit	Murphys Mill (South Windmill) (1906)	MLK Drive, east of Great Highway
NA		√	√		Spreckels Temple of Music (1900)	Music Concourse
NA	Determined Eligible	√	√		Japanese Tea Garden (1894)	Tea Garden Drive
NA			√		Millwright's House (1909)	MLK Drive east of Great Highway

Source: The Duffey Company compiled from San Francisco Recreation and Park Department Golden Gate Park Draft Master Plan, "Buildings and Structures Inventory", March 1995, pp. 8-4 through 8-5; San Francisco Planning Code, Article 10; Here Today - San Francisco's Architectural Heritage; and the 1976 Planning Department Historical Survey.

Structures Contributing to Historic Character

Park buildings and structures identified on pages 8-4 and 8-5 of the Park Master Plan as "contributing" to historic character of the Park landscape include the Carousel (1889), Equestrian Center stables and grandstand (1939), Kezar Pavilion (1926), Murphy's Mill (the south windmill), 1906), the Japanese Tea Garden (1894), the Pioneer Log Cabin (1911), Powell Street Railroad Station (1889), Angler's Lodge (1936), Chinese Pavilion (1981), Model Yacht Club (1938), Millwright's House (also known as the Murphy's Mill House, 1909), Portals of the Past (1909), Richmond-Sunset Sewage Treatment Plant (constructed in 1937 and demolished 1996), Spreckels Temple of Music (1900), Stow Lake Boathouse (1946), Sweeney Observatory ruins (1891; destroyed in 1906 earthquake), and the Park Police Stables (1936).[5]

POTENTIAL FOR DISCOVERING BURIED ARCHAEOLOGICAL DEPOSITS

In the San Francisco area, prehistoric archaeological sites are generally located along watercourses or along the coast or bay shore, particularly along the edge of former or existing marsh systems. Golden Gate Park extends to Ocean Beach on the west, and contains sites of a number of formerly natural ponds. Although these features are present, no recorded prehistoric or historic archaeological sites are listed for the Park with the California Archaeological Inventory. The Inventory, available through a records search of the Historical Resources Information System, Northwest Information Center at Sonoma State University, includes the National Register of Historic Places, the California Inventory of Historic Resources, California Historical Landmarks, the California Ethnic Site Survey, and the Point of Historical Interest Log.

Potential Prehistoric Archaeological Deposits

According to the Northwest Information Center (NIC) at Sonoma State University, it is difficult to predict whether or not archaeological sites may occur within Golden Gate Park, because it is situated on a landscape of sand dunes that has been highly modified by human activity. Native American archaeological sites in the portion of San Francisco County where the Park is located tend to be situated near beaches, on broad alluvial fans and marine terraces near former and existing water sources. The Park site extends to the ocean, and contained several natural lakes and ponds prior to development which may have been visited by native peoples. However, sand dunes shift naturally and may obscure or uncover previous natural and cultural landscapes. The sand dunes were stabilized when grass and trees were planted to create the Park. Vegetation, especially grass, obscures the ground surface, making it hard to identify cultural resources.[6]

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[5] Golden Gate Park Draft Master Plan, San Francisco Recreation and Park Department, March 1995, based on Carey and Company, Technical Report-Architectural Evaluation of Buildings, and Monuments and Statues, 1993.

Prehistoric resources include chert or obsidian flakes, projectile points, mortars and pestles. Important examples of red rocks of the Franciscan formation that belong to the Jurassic period, more than a hundred million years old, could contain fossils.

Potential Historic Archeological Historic Archeological Deposits

A variety of activities known to have occurred on the site of Golden Gate Park from the time of its inception could have left debris and artifacts that became covered by soil and vegetation. Also, artifacts could remain from squatter's shacks that were on the Park site prior to its development. Records indicate that some Park facilities have been demolished and their sites returned to Park landscape. Among these are the casino, which was originally constructed in 1881 and occupied two different sites before being relocated outside the Park in 1896, and the first superintendent's house, a two-story wood Victorian house opposite the present site of McLaren Lodge which was constructed in 1874,and demolished in 1896. Sweeney Observatory, built at the summit of Strawberry Hill in 1891, was severely damaged in the 1906 earthquake and subsequently demolished. The foundation still remains, and as such, constitutes a Park feature. Other objects within the Park, from structures, buildings or landscape features, that may be of historic value could be buried. Historic resources would include stone or adobe foundations or walls, structures and remains with square nails, refuse deposits found in old wells, and privies.

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[6] Historical Resources Information System, Northwest Information Center, Sonoma State University, Records and Literature Search Re: Golden Gate Park Master Plan, letter to Deborah Leamer, Park Planner, dated July 6, 1995.

IV. POTENTIAL ENVIRONMENTAL IMPACTS

A. LAND USE, ZONING AND VISUAL QUALITY

This section addresses potential impacts of proposed Park Master Plan projects on land use and visual quality.

PARK MASTER PLAN - PROJECT IMPACTS

In general, the proposed Park Master Plan projects would maintain existing land use patterns. No substantial disruption or division of the physical arrangement of established uses would occur. The Park landscape would remain a public open space area with various buildings, monuments and facilities. The general (overall) landscape character of the Park would be preserved as mandated by policies of the proposed Park Master Plan. The visual qualities of the Park would be maintained and enhanced by the proposed restoration and rehabilitation of Park landscapes, buildings, structures, lakes, pathways and recreation facilities. Project-specific changes in land use and visual quality that would result from individual projects are summarized below, organized by Park Master Plan Element.

Park Landscape Element

Proposed Landscape Element projects including reconstruction of the man-made lakes, Rainbow Falls and Rhododendron Dell, and the Wildlife habitat improvement program, would not change the physical arrangement or use of Golden Gate Park and thus would not adversely affect land use. Proposed landscape projects would preserve and enhance Park visual qualities by clearing invasive plant growth around and in lakes, improving water quality in lakes, pruning overgrowth, trimming trees and reforesting areas of the Park where needed.

Circulation Element

The proposed Circulation Element projects would result in some changes to existing roadway and pathway systems within the Park. In general, the net result would be a slight reduction in the amount of roadway pavement, returning areas to parkland (eastern JFK Drive, Fell and Stanyan Park entry, Conservatory Drive East, South Fork Drive, a portion of 47th and JFK, Waller Street, a portion of Middle Drive along the West Garden Drive) and a slight increase in the amount of landscape, trail and pathway area within the Park. Park visual quality would be enhanced for pedestrians, cyclists and other Park users in those areas. See also, Alternatives (Chapter VIII) for analysis of More Road Closures.

Recreation Element

Proposed Recreation Element projects (trail and path improvements and rehabilitation, golf course irrigation, and the relocation of horseshoe courts) would not change existing Park land use or visual character.

Visitor Facilities Element

None of the proposed Visitor Facilities projects would substantially change existing or historic use of Park facilities. The Beach Chalet project is an interior renovation of an existing building, as are restroom renovation projects and the proposed creation of an eastern Park visitors' center. Construction of an information kiosk in the Music Concourse area would add a small (75 sq. ft.) physical feature to the existing visitor use area and would not substantially change existing land use, obstruct views or degrade existing visual character in the Concourse area.

Buildings and Monuments Element

The proposed Park Master Plan includes numerous individual projects that would affect Park buildings, most of which involve building renovation and rehabilitation. Also included are several building demolition, expansion, replacement and new construction projects, as summarized in Table 28 below. The Richmond-Sunset Sewer Treatment Plant was demolished in 1996. Other buildings proposed to be demolished include Millwright's House near Murphy's Windmill and two small structures (temporary vendor kiosk and food trailer) in the Music Concourse area. Including the demolition of the Treatment Plant, the total reduction in Park building area would be about 61,440 square feet. New and replacement building construction would total about 13,900 square feet in the following facilities: the Conservatory (about 2,700 net new square feet of nursery and restroom area); the equestrian center (about 1,000 net new square feet of area); the golf clubhouse (an additional 750 square feet); Japanese Tea Garden (about 400 square feet of new restroom area); Music Concourse facilities (about 1,000 square feet of net new area); a new pumphouse for the underground reservoir (up to about 1,200 square feet); Strybing Arboretum facilities (about 2,500 square feet of new area); the tennis clubhouse (about 1,500 feet of expanded area); and the West End Pavilion and restrooms (about 2,500 square feet of building area on the site of the Millwright's House).

The proposed net reduction in Park building area of about 46,960 sq. ft. would return Park land for recreational use. Demolition of the Millwright's House would potentially result in adverse visual impacts due to the historic value of the Millwright's House (built in 1909) as part of the Murphy Windmill complex (see Section L. Cultural Resources, p. 266). The proposed new visitor center with recreational uses on the site would remove a non-recreational use and replace it with a recreational use. The other building expansions, modifications, and renovations (Conservatory, County Fair Building, Urban Forestry Center, Equestrian Center, Tennis and Golf Clubhouses) proposed for near-term action would not substantially change land use or visual character in the Park because they are either within an existing building footprint or in a special use area where changes would be compatible with existing conditions. (See also, Special Area Plan on p. 74.)

Utilities and Infrastructure Element

General repair and replacement of sewers, drainage converts and light fixtures would not change land use or visual character in the Park. New night lighting proposed for the tennis courts, Pioneer Log Cabin and Equestrian Center would not change land use but would be visibly noticeable from within the Park. None of these lighted areas is elevated or adjacent to residential uses, and therefore would not result in obtrusive light or glare to sensitive receptors.

TABLE 28: GOLDEN GATE PARK BUILDING AREAS EXISTING AND PROPOSED

	EXISTING[1]		PROPOSED UNDER PARK MASTER PLAN			
Facility Name	Main Building Area (sq. ft.)	Restroom Area (sq. ft.)	Demolition Area (sq. ft.)	Main Building Construction or Expansion Area (sq. ft.)	Restroom Construction or Expansion Area (sq. ft.)	**Net Change in Building Area (sq. ft.)**
Anglers Lodge	1,700	in building				
Beach Chalet	9,000	in building				
Big Rec		1,000				
Carousel	3,800					
Children's Playground		1,750				
Chinese Pavilion	400					
Conservatory[2]	27,900	300	(-300)	3,000	in expansion	**2,700**
Corporation Yard	35,170	in building				
County Fair Building	26,183	in building				
Emergency Aid Station	2,733	in building				
Equestrian Center	38,000			1,000	in expansion	**1,000**
Golf Clubhouse	600	in building		750	in building	**750**
Horseshoe Area		400				
Horticultural Library[3]	2,370					
Japanese Tea Garden	2,600	600			400	**400**
Kezar Pavilion	37,500					
Kezar Stadium		3,600				
Lawn Bowling Clubhouse	600					
McLaren Lodge	11,500					
Model Yacht Club	2,250	in building				
Mothers' Meadow		800				
Murphy's Mill	700					
Millwright's House	2,200		(-2,200)			**(-2,200)**
Music Concourse Food Service	300		(-300)	400		**100**
Music Concourse Kiosk				75		**75**
Music Concourse Maintenance[4]	356		(-356)	1,000	150	**794**
North (Dutch) Windmill	750					

(cont'd)

TABLE 28: GOLDEN GATE PARK BUILDING AREAS EXISTING AND PROPOSED (Cont'd)

North Lake		875				
North Training Quarters		1,250				
Nursery & Greenhouse	23,000					
Panhandle		600				
Park Police Stables	11,800					
Pioneer Log Cabin	1,500					
Portals of the Past	75					
Powell Street RR Station	768					
Pumphouse Entry and Room				1,200	in building	**1,200**
Rose Garden		625				
Senior Center	7,600					
Sewage Treatment Plant	58,280		-58,280			**-58,280**
Sharon Building	9,225					
Speedway Meadow		1,000				
Spreckels Temple of Music	5,191	600				
Stanyan/Page		600				
Stow Lake Boathouse	3,500	in building				
Strybing Arboretum Bldgs	12,500	600		2,500	in building	**2,500**
Soccer Field/Beach Chalet		2,500				
South Training Quarters		1,250				
Tennis Clubhouse	1,500			1,500	in expansion	**1,500**
Urban Forestry Center	3,100					
West End Maintenance		1,300				
West End Pavilion				2,500	in expansion	**2,500**
TOTALS	342,915	19,650	(-61,436)	13,925	550	**46,961**

[1] Because they are not park facilities, the Academy of Sciences/Aquarium (approx. 201,200 sf) and the de Young/Asian Art Museums (approx. 123,100 sf) are not included.

[2] Conservatory expansion is in a fenced area, would not expand the building footprint.

[3] A 1,500 square foot underground Library expansion area is proposed; this would not expand the building footprint.

[4] Includes the attendant booth and cargo containers.

Source: San Francisco Recreation and Park Department, 1995.

Groundwater wells have above-ground pumps. The three new wells proposed for the west end of the Park would be screened from public (Park visitor) view by vegetation and this would not substantially change land use or visual character. The proposed underground reservoir and above-ground pumphouse would be located in an area with compatible existing uses (compost and woodchip area), not visible from visually sensitive Park roads or recreational areas. No substantial impacts to existing land use or visual character would result from these actions/projects.

Maintenance and Operations Areas Element

Consolidation of Park maintenance and operations areas and relocation of the log storage from next to the Bison Paddock to an area highly visible from JFK Drive would remove these visually incompatible uses from highly-visible areas in the Park to locations screened from view of Park visitors. Moving the log storage area would free up 0.8 acres of Park land.

Special Area Plans Element

Music Concourse Proposed changes in the Music Concourse area, including construction of a cafe plaza, permanent food vending facility, consolidated service structure, and information kiosk would replace temporary structures with a landscaped plaza that would be designed to blend with the surrounding Park features and landscape. The net change in building space would be about 1,000 sq. ft. of permanent structures on a paved area used by Park visitors, buses and automobiles. Consolidation of the maintenance equipment storage area and removal of cargo containers from the parking area would free up space for autos and buses. Landscaping would screen these maintenance uses from public view.

West End Proposed improvements to the West End trail, Park frontage along the Great Highway and addition of a new Park entry at Lincoln and Great Highway would not change Park land use, but would open viewsheds from trails through the dense vegetation toward the Pacific Ocean and add landscape treatment to the Great Highway and Lincoln Way Park entries. These West End improvements would be compatible with projects proposed for this area, including demolition of the Millwright's House and replacement with a pavilion/reception hall with visitor services (kitchen, toilets, bike rental, small food concession, meeting room), renovation of the Beach Chalet (completed) and development of a soccer field on the area formerly occupied by the Treatment Plant.

Strybing Arboretum and Botanical Gardens

The phased projects proposed in the Park Master Plan to be implemented by the Strybing Arboretum Society for the Arboretum area would reorganize existing uses and facilities within the existing Arboretum area and would add a new nursery and entry to the west side of the Arboretum. Proposed changes would also relocate a previously approved classroom and renovate the County Fair building for uses in conjunction with the Arboretum gardens. Land-use and visual character would not be substantially affected.

Richmond Sunset Treatment Plant Site

Demolition of the Richmond Sunset Treatment Plant (part of the Oceanside Water Pollution Control Plant project) in 1996 was consistent with *San Francisco General Plan* policy and draft Park Master Plan policy of gradually removing non-recreational uses from the Park. The soccer field and picnic area proposed for the site would be more in keeping with the Park land use. Visual character would be more in keeping with the Park character by the replacement of paved areas and buildings with recreation features and landscaping.

CONSTRUCTION IMPACTS

Visitor use and visual character of many parts of the Park would be temporarily disrupted during individual project construction. During lake reconstruction projects and development of the underground reservoir for example, soil and sediment would be exposed, some surrounding vegetation would be removed, and heavy earthmoving machinery would be in use. Roadway, utility reconstruction and building renovation projects would similarly disrupt normal Park activities and aesthetic qualities on a temporary basis. In general, recreational uses in the specific project areas (e.g., lakes, playing fields, paths, buildings under renovation, etc.) would be closed to the public during their heavy construction periods. The Golden Gate Park Bond construction projects would be phased over a seven to ten-year period and projects would be coordinated by zone to minimize disruption to recreational use and visual impacts in the Park (see Appendix B). Other non-bond funded Park Master Plan construction may be coordinated with bond projects within the 10-year time-frame or may extend beyond the 10-year bond implementation period.

CUMULATIVE IMPACTS

Other than temporary construction-related impacts to recreation-use and visual quality, the cumulative effect of implementation of the actions/projects proposed in the Park Master Plan would not adversely impact visual quality or land use in Golden Gate Park. The Park Master Plan is intended to preserve and enhance parkland and visual qualities. When successfully implemented over the 7-10 year time frame, the proposed projects would: remove non-recreational uses and return about 47,000 sq. ft. of land to Park use; consolidate maintenance and support facilities to make more efficient use of Park land and screen them from visitor use areas; reduce unnecessary paved area (roadways); and landscape entries and Park edges to conform with the Park setting.

B. POPULATION

VISITOR USE

Under the proposed Golden Gate Park Master Plan, the overall recreational use of the Park would not change and the annual visitor volume would be expected to remain at about eleven to fifteen million persons per year. The same types of recreational events in existing and renovated Park facilities would continue to occur. Some change in the existing visitor use of individual facilities (Sharon Building, Beach Chalet, Pioneer Log Cabin, children's play areas, tennis clubhouse) would occur as a result of proposed improvements. However, this change would not substantially change concentrations of visitor population in the Park. The cumulative effect of the projects proposed for the West End of the Park, including the restaurant use of the Beach Chalet, the new soccer field where the Richmond Treatment Plant was demolished, and possible development of a new visitor serving use where the Millwright's House is proposed for removal, would potentially attract Park visitors to the West End of the park; however, this increased use would not be substantial.

HOUSING

Two individual projects under the Buildings and Monuments Element would affect existing housing. The proposed demolition of the Millwright's House would displace three residents currently renting the house under a month-to-month agreement with the City. The tenants would be given a 30-day notice to vacate. An evaluation of the structure conducted in May, 1995[1] showed extensive structural and accessibility improvements would be needed to meet minimum building code improvements, making it unfeasible to renovate the residence for public assembly as proposed in the draft Park Master Plan. Additionally, the existing private residential use is not in conformance with Recreation and Park policy for use of Park land for recreation.

A caretakers house would be added to the Equestrian Center as part of the proposed Park Master Plan. This would replace the existing mobile trailer and would provide a permanent residence in the Park. On-site supervision is required by US Department of Agriculture to provide security for horses boarded at the stables. No impacts to housing would result from the proposed project.

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[1] Millwright's House Evaluation, May 1995, by McCluskey and Associates Architects for SF Recreation and Park Department.

EMPLOYMENT

The Park Management and Maintenance Element of the proposed Park Master Plan recommends an increase of 30 landscape and custodial maintenance staff and an increase of two foresters in the Park. This increase would not substantially change population.

CONSTRUCTION WORKERS

Overall the proposed Park Master Plan could create about 62 person-years of construction employment spread over a seven to ten-year time period.[2] According to Department of Public Works estimates the number of on-site construction workers would range from about 25 to 125 at any one time, depending on the scheduling and sequencing of the individual projects. The lake reconstruction projects and the pump station and reservoir would represent the highest concentrated numbers of construction workers in one area of the Park during a 24-month period in 1997-1998. Construction contracts, as with most City contracts, would include local preferences in selection criteria, therefore construction workers are anticipated to be primarily from the Bay Area. This temporary construction-related employment would not substantially change population in the City.

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[2] Patrick Rivera, San Francisco Department of Public Works, December 17, 1996, correspondence

C. TRANSPORTATION

This chapter describes the transportation impacts likely to result upon implementation of *Draft Master Plan* actions. A more detailed analysis of transportation impacts is provided in the "Final Transportation Study for the Golden Gate Park EIR", December 1996, available for review in the case file at the Planning Department.

TRAVEL DEMAND

The following sections describe estimated vehicle trip generation, trip distribution, and trip assignment associated with various *Draft Master Plan* proposals. Since none of the proposed projects would be major trip generators, it is not envisioned that any of the proposed projects would substantially increase transit, pedestrian or bicyclist trips to and from the Park or its surroundings. It was also assumed that few, if any, of the proposed projects would generate a notable amount of *new* vehicular-trips to or from the Park.

To compare conditions among scenarios during the 2005 study year, existing traffic volumes were generally increased by an annual growth rate of one percent, so in most cases year 2005 base traffic volumes are about ten percent higher than existing volumes.

As discussed below, for each *Draft Master Plan* transportation project, traffic was "re-routed" along roadways proposed to remain open within the Park and on roadways adjacent to the Park. The distribution of re-routed trips was done for both current traffic conditions and the year 2005. Different traffic re-routings were conducted for each of four scenarios based on logical shifts drivers would be expected to make to reach destinations.

The section entitled "Transportation Impacts", beginning on p. 209, discusses how the re-routed traffic would affect study area roadways and intersections.

Trip Generation

None of the proposed *Draft Master Plan* projects (except the recently renovated and operating Beach Chalet Visitor Center) would be expected to attract a notable amount of new vehicular trips to or from the Park. It is likely that vehicle-trips to the County Fair Building, Millwright's House, Pioneer Log Cabin, Powell Street Railway Station, and Sharon Building would be linked to additional destinations; that is, people in vehicles would generally not come to the Park solely to visit one of these attractions. Thus, traffic generation to and from one of these five sites may slightly increase or decrease, but the number of new vehicle-trips along adjacent roadways would be expected to be insignificant.

This study evaluates traffic conditions for the year 1995 and the year 2005.[1] Year 2005 background traffic (i.e., excluding any projects from the *Draft Master Plan* except consideration of the Beach Chalet Visitor Center) was estimated by factoring existing traffic levels by an annual compound growth rate of one percent, consistent with historic traffic growth in the study area.[2]

Tables 29 and 30 present the year 2005 intersection service levels for the selected intersections under a base condition of no changes to the existing street system.

As shown in Table 29, by the year 2005 increased cumulative traffic will substantially worsen the operation of four signalized intersections during the weekday peak period. Both the Stanyan Street/Fulton Street and 19th Avenue-Crossover Drive/Lincoln Avenue intersections will degrade to LOS F with motorists experiencing 76 and 73 seconds of average delay, respectively. The Crossover Drive/MLK Jr. Blvd. and the 9th Avenue/Lincoln Way intersections will degrade to LOS E conditions. On Sundays, only the Stanyan Street/Fulton Street intersection will operate substantially worse over the next ten years. This intersection will operate at LOS F with average delays increasing to 64 seconds.

As shown in Table 30, none of the stop sign controlled movements at any of the study intersections are expected to deteriorate substantially.

Trip Distribution for Roadway Closures

This section describes how traffic patterns would change if the roadway closures proposed in the *Draft Master Plan* were implemented. The following discussion focuses on 1995 weekday peak hour and 1995 Sunday peak hour conditions. Since peak hour traffic volumes are expected to grow an average of one percent per year over the next ten years, year 2005 peak hour traffic diversions would likely be just over ten percent higher than the volumes presented below.

Arguello Boulevard: Arguello Boulevard, a northbound one-way roadway segment south of Kezar Drive, carries about 20 weekday peak hour trips and 15 Sunday peak hour trips. Closure of Arguello Boulevard at Kezar Drive would re-route these trips (to northbound Kezar Drive,

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[1] The 1995 counts are a conservative representation of current traffic conditions. The closure of the Central Freeway in 1996 may have redistributed the traffic approaching / leaving the Park along the Fell and Oak corridors.

[2] Using "Quality Restaurant" rates from the Institute of Transportation Engineers *(Trip Generation, 5th Edition)*, it was estimated that the 4,500 square foot second floor cafe/restaurant generates about 34 vehicle-trips (24 in/10 out) during the weekday p.m. peak hour and about 38 vehicle-trips (19 in/19 out) during the Sunday peak hour. It was assumed that the 4,500 square foot first floor visitor center mostly attracts traffic primarily destined for the cafe/restaurant or traffic already along the adjacent street system (passerby trips). Therefore, new vehicle-trips related to the Beach Chalet Visitor Center, exclusive of the restaurant, are assumed to be included in the year 2005 background traffic.

Table 29: 2005 LOS for Signalized Intersections - Base Condition

ID	Intersection	Existing Weekday Delay/LOS	2005 Weekday Delay/LOS	Existing Sunday Delay/LOS	2005 Sunday Delay/LOS
1	Stanyan/Fulton	**50s /E**	**76s / F**	**42s /E**	**64s / F**
2	Arguello/Fulton	10s /B	10s / B	6s /B	6s / B
3	8th/Fulton	11s /B	12s / B	9s /B	10s / B
4	25th/Fulton	12s /B	12s / B	9s /B	11s / B
5	36th/Fulton	7s /B	7s / B	6s /B	6s / B
7	Stanyan/Kezar[3]	18s /C	38s / D	13s /B	19s / C
12	Crossover/MLK	19s /C	**42s / E**	10s /B	11s / B
14	Stanyan/Frederick	9s /B	10s / B	13s /B	18s / C
16	9th/Lincoln	35s /D	**53s / E**	8s /B	9s / B
17	19th-Crossover/Lincoln	35s /D	**73s / F**	19s/B	37s / D
20	Great Highway/Lincoln	14s /B	16s / C	16s /B	16s / C
21	19th/Kirkham	12s /B	17s / C	12s /B	14s / B
22	9th/Judah	8s /B	8s / B	8s /B	8s / B
23	19th/Judah	14s /B	24s / C	10s/B	12s / B
24	9th/Irving	8s /B	8s / B	7s /B	8s / B
25	19th/Irving	12s/B	18s / C	10s /B	11s / B

Source: The Duffey Company

Table 30: 2005 LOS for Unsignalized Intersections - Base Conditions

ID	Intersection	Movement[3]	Existing Weekday LOS	2005 Weekday LOS	Existing Sunday LOS	2005 Sunday LOS
6	Stanyan/Fell	SB LT WB LT (s) WB RT (s)	B F B	B F B	B F B	B F B
8	Kezar/JFK	EB LT (s) EB RT (s)	F F	F F	Closed Closed	Closed Closed
9	36th/JFK	SB RT (s)	A	A	A	A
10	Great Hwy./JFK	SB LT WB LT (s) WB RT (s)	B F A	B F A	B F B	B F B
11	9th/MLK	SB LT WB LT (s) WB RT (s)	A C A	A C A	A B A	A C A
13	Sunset/MLK	NB (s) EB (s) WB (s)	F F F	F F F	C C B	C D B
15	3rd/Lincoln	NB LT (s) NB RT (s)	F B	F B	F C	F C
18	36th/Lincoln	NB LT (s) NB RT (s)	F B	F B	E B	E B
19	37th/Lincoln	WB LT (s)	C	C	C	C

[3] Movements: SB = southbound, WB = westbound, etc. LT = left-turn and RT = right-turn. (s) = stop sign controlled movement.

Source: The Duffey Company

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[3] Existing conditions were analyzed assuming proposed striping and signal phasing, i.e., protected left-turn movement for southbound Stanyan Street to eastbound Oak Street (left-turn arrow).

northbound Stanyan Street and/or eastbound Oak Street) via the 3rd Avenue/Lincoln Way or Stanyan Street/Frederick Street intersections.

Conservatory Drive East: During the weekday peak hour, about 150 cars travel along this one-way roadway. The most popular travel route is westbound along JFK Drive, to Conservatory Drive East, and then northbound to Arguello Boulevard. Most of the through traffic then continues to travel northerly on Arguello Boulevard north of Fulton Street, but some motorists turn left (westbound) along Fulton Street. Under the roadway closure, it was assumed that one-half of the weekday peak hour trips would re-route via Stanyan Street (northbound) to Fulton Street (westbound). Some traffic would continue to use JFK Drive, but would divert to Conservatory Drive West or 8th Avenue. The closure would have little effect on Sunday peak hour conditions since Arguello Boulevard is currently barricaded off south of Fulton Street on Sundays.

Middle Drive West: Most of the motorists who presently use this roadway would be re-routed via MLK Jr. Drive to the south. A small portion of users would divert to JFK Drive to the north. This closure is not expected to re-route any vehicles to any of the 25 study intersections.

Music Concourse Roadway: On busy weekends, up to 250 motorists (per hour) drive along this roadway after leaving the parking aisle north of the Academy of Sciences (see Figure 5). Many of these motorists circulate back onto Academy Drive via Tea Garden Drive and MLK Jr. Drive, contributing to the often congested conditions in the area. Under the roadway closure, all of these motorists would be forced to tum back onto Academy Drive directly, thereby bypassing Tea Garden Drive and MLK Jr. Drive. No study intersections would be affected by this re-routing.

South Fork Drive: Closure of South Fork Drive would not allow motorists in the west end of the Park to directly drive from MLK Jr. Drive to JFK Drive and vice-versa. This connection would be made either along Chain of Lakes Drive or along Great Highway. Due to the "through" nature of the JFK Drive/MLK Jr. Drive connection, traffic volumes at the Great Highway/JFK intersection would decrease (by about 90 vehicles during the weekday peak hour and 200 vehicles during the Sunday peak hour). However, traffic volumes would increase at the Great Highway/Lincoln Way intersection (by approximately the same amounts).

Sunset Boulevard: The closure of Sunset Boulevard's entrance to the Park would divert traffic similarly to the proposed "Crossover Drive/MLK Jr. Drive Left-Turn Prohibition" project described later under "Trip Distribution for Traffic Calming Measures." In addition, the closure would re-route almost all of the non-through vehicle-trips which currently make a turning maneuver at the Sunset Boulevard/MLK Jr. Drive intersection in the Park to the proposed Sunset Boulevard/Lincoln Way at-grade intersection just outside the Park.

This new intersection on the southern edge of the Park would have almost 380 vehicles more making a northbound left-turn during the weekday peak hour than presently turn left at 36th Avenue/Lincoln Way. An increase of 350 vehicles would be expected during the Sunday peak hour. The northbound right-turn would increase by about 150 vehicles and 80 vehicles, respectively. In addition, about 310 vehicles more would make an eastbound right-turn than presently turn right at 37th Avenue/Lincoln Way. An increase of 280 vehicles would be expected during the Sunday peak hour.

Waller Street: Waller Street, between Kezar Drive and Stanyan Street, is used primarily for through travel and on-street parking. Peak hour through trips along the roadway segment vary from under 500 vehicles during the weekday peak hour to over 600 vehicles during the Sunday peak hour. The majority of these trips would be diverted to Stanyan Street between Waller Street and Frederick Street, and Frederick Street-Lincoln Way between Stanyan Street and 3rd Avenue. Therefore, traffic levels would increase at the Stanyan Street/Frederick Street and 3rd Avenue/Lincoln Way intersections. A small amount of trips would divert along Kezar Drive and Stanyan Street north of Waller Street, causing slight traffic volume increases at the Kezar Drive/JFK Drive and Stanyan Street/Kezar Drive intersections.

7th Avenue: Seventh Avenue's entrance to the Park is limited to right-turns in and out only from and to Lincoln Way. The access point sees limited use during the weekday peak hour, with about 10 cars entering and 10 cars exiting. This picks up during the Sunday peak hour, with about 30 cars entering and 40 cars exiting. All of the vehicles currently using the 7th Avenue entrance would likely be re-routed to the 9th Avenue/Lincoln Way and 9th Avenue/MLK Jr. Drive intersections.

30th Avenue: During the weekday peak hour, about 180 cars use this short roadway. This increases up to about 200 cars during the Sunday peak hour. Under the roadway closure, almost all of these trips would be diverted to 36th Avenue/Fulton Street and 36th Avenue/JFK Drive or to a lesser degree to 25th Avenue/Fulton Street/Transverse Drive.

47th Avenue: During the weekday peak hour, about 15 cars, in each direction, use 47th Avenue to JFK Drive. This increases to about 30 cars during the Sunday peak hour. Under the roadway closure just north of JFK Drive, almost all of these trips would be diverted to Great Highway/Fulton Street and Great Highway/JFK Drive.

Permanent Road Closure Barricades: Use of permanent physical barriers to replace temporary barriers in the same locations associated with existing road closures on the weekends would not affect the transportation system. Since no impacts are foreseen, further discussion is not provided.

Trip Distribution for Traffic Calming Measures

This section describes how traffic patterns would change if the traffic calming measures proposed in the *Draft Master Plan* were implemented. Similar to the above discussion, the following focuses on 1995 peak hour conditions. Year 2005 affected traffic volumes would be just over 10 percent higher.

Crossover Drive/MLK Jr. Drive Left-Turn Prohibition: During the weekday peak hour, about 500 vehicles turn left from eastbound MLK Drive onto northbound Crossover Drive. During the Sunday peak hour, about 400 vehicles make this turn. Based on an analysis of traffic volumes and patterns originating from the Sunset Boulevard/MLK Drive intersection to the west, it was estimated that about 400 of the 500 weekday vehicles are through trips (80 percent), while about 300 of the 400 Sunday vehicles are through trips (75 percent).

The following weekday peak hour diversions are likely (Sunday volumes are shown in parentheses):

- About 100 (90) of the through vehicles that currently travel eastbound through the Sunset Boulevard/MLK Drive intersection would re-route along eastbound Lincoln Way.

- Of the 300 (210) through vehicles that currently turn right onto eastbound MLK Drive from northbound Sunset Boulevard, about 250 (170) vehicles would travel one block on northbound 36th Avenue (via Sunset Boulevard) and turn right onto eastbound Lincoln Way instead. The remaining 50 (40) vehicles would access 19th Avenue-Crossover Drive by traveling northbound on 19th Avenue in the first place or by traversing Irving Street or Kirkham Street easterly from Sunset Boulevard.

- Of the 350 (260) through vehicles re-routed easterly along Lincoln Way, the majority, or 200 (190) vehicles, would likely access Crossover Drive by making three convenient and consecutive right-turns: at 18th Avenue, at Irving Street, and onto 19th Avenue. The remaining 150 (70) vehicles would likely take the shorter, but less convenient route of turning right at 20th Avenue, left at Irving Street, and left onto 19th Avenue.

- The remaining 100 (100) vehicles that turn left at Crossover Drive/MLK Drive are non-through vehicles, or vehicles that have purposes in the west side of the Park (traveling along Middle West Drive or MLK Jr. Drive). It is unlikely these motorists would travel south or backtrack along their routes to access Crossover Drive via Lincoln Way. Most likely, a high percentage of these trips would travel northerly along Transverse Drive to 25th Avenue/Fulton Street, where then some would travel northerly along 25th Avenue before traversing easterly to Park Presidio, while the rest would travel easterly on Fulton Street.

In addition, without effective traffic control or enforcement, some motorists may be tempted to continue along their current eastbound MLK Jr. Drive route, but drive easterly through the Crossover Drive/MLK Jr. Drive intersection, make a U-turn on MLK Jr. Drive just east of the intersection, then travel west on MLK Jr. Drive for a short distance before turning right onto northbound Crossover Drive.

While reducing traffic volumes at the Sunset Boulevard/MLK Drive intersection, the proposed left-turn prohibition would increase traffic volumes at eight study intersections, including increases of over 300 (250) vehicles per peak hour at each of three intersections: 36th Avenue/Lincoln Way, 19th Avenue/Irving Street, and 19th Avenue-Crossover Drive/Lincoln Way.

Kezar Drive/JFK Drive T-Intersection: This proposed improvement would retain all existing traffic movements at the intersection. Therefore, only a small amount, if any, of re-routing is expected due to the "tighter" intersection. The improvement would likely only re-route tourists to the south along Kezar Drive (those drivers familiar with JFK Drive and Kezar Drive would be less inclined to be re-routed). To model a "conservative" impacts scenario, no diversions were assumed, i.e., all existing Park "cut-through" traffic was assumed to remain on Park roadways.

JFK Drive Landscape Extensions: Landscape extensions are intended to create a more "Park-like" atmosphere by encouraging slow traffic speeds and better defining on-street parking areas. No traffic re-routing is expected due to the provision of landscape extensions.

Tea Garden Drive Alternatives: The landscape extensions proposed for each of the traffic calming alternatives would be designed to slow traffic speeds and better define pedestrian crossings. No traffic re-routing is expected under either of the alternatives proposed.

Paving Reductions at Various Intersections: This traffic calming measure is aimed at slowing traffic speeds through the Park, not reducing traffic volumes. Therefore, no diversions would likely occur due to paving reductions.

Trip Distribution for Intersection Improvements

Under the Golden Gate Park Master Plan, two intersections are proposed to be improved. This section describes how traffic patterns would change if the Stanyan Street/Fulton Street improvements proposed in the *Draft Master Plan* were implemented. No traffic pattern changes would be anticipated due to the proposed Stanyan Street/JFK Drive intersection improvements. Similar to the previous two discussions, the following focuses on 1995 peak hour conditions.

Stanyan Street/Fulton Street: Capacity gained at this congested intersection would reduce motorist delays and likely attract motorists currently using other routes, primarily during the weekday peak period. The added second northbound left-turn lane would divert about 75 cars from westbound Kezar Drive and JFK Drive to westbound Fulton Street. Therefore, traffic volumes would be reduced at Kezar Drive's intersections with Stanyan Street and JFK Drive, but would be increased at Stanyan's intersections with Fell Street and Fulton Street and at the Arguello Street/Fulton Street intersection.

In addition, slight traffic increases (up to 50 cars per hour) would be expected on Fulton Street (westbound) just east of Stanyan Street to just east of 8th Avenue.

Trip Assignment

Using the trip distribution assumptions discussed above, traffic volumes were assigned to the study area roadway network considering the following four study scenarios:

SCENARIOS EVALUATED

DRAFT MASTER PLAN PROJECT	PROJECT INCLUDED IN: Scenario 1	Scenario 2	Scenario 3	Scenario 4
Sunset Boulevard Closure				√
Crossover Drive/MLK Jr. Drive Left-Turn Prohibition			√	√
Stanyan Street/Fulton Street Improvements		√	√	√
All Other *Draft Master Plan* Projects	√	√	√	√

PARKING DEMAND

While several of the proposed roadway closures, the commuter parking restrictions, and an intersection improvement would displace or remove existing Park area parking spaces (see

"Parking Impacts"), only the building and structure improvement projects proposed in the *Draft Master Plan* could increase parking demand, as discussed below.

Parking Demand for Building and Structure Improvements

Improvements proposed at the County Fair Building, Millwright's House, Pioneer Log Cabin, Powell Street Railway Station, and Sharon Building would likely generate relatively little, if any, new traffic or parking demand. The proposed improvements do not change the operation of the existing facilities or, in the case of the Millwright's House, would be too minor to generate substantial parking demand. However, the new uses which were approved for the Beach Chalet Visitor Center generate some new parking demand. Under the *Draft Master Plan*, the first floor of this 9,000 square foot building would be used as a Park visitor center and the second floor as a cafe/restaurant. Development of the cafe/restaurant was approved by the Recreation and Park Commission for construction in 1996.[4] The building was opened for service in early 1997.

Under the approved parking plan, 69 parking spaces (including 65 regular spaces, 3 handicap spaces, and 1 delivery space) are provided on the site. If and when parking demands exceed this supply, "overflow" parking exists in the public parking spaces west of the Great Highway and along Park roadways.

TRANSPORTATION IMPACTS

The transportation impacts likely to result upon implementation of the Draft Master Plan's proposed projects are addressed in this section. Tables 31a, 31b, 32a, and 32b summarize the intersection levels of service for signalized and unsignalized intersections for the Year 2005 background traffic. Traffic impacts for the four scenarios are presented and described in the text. In addition, expected transit, parking pedestrian and bicyclists, and construction impacts are identified and discussed.

Traffic Impacts of All Scenarios

The following traffic impacts would occur under all four scenarios studied:

Conservatory Drive East: The closure of this roadway would preclude direct automobile access to the current location of the horseshoe courts. However, this is not considered an impact as users arriving by car may still park close to the courts---on Stanyan Street, Fulton Street, JFK Drive, or other nearby roadways---and walk to the courts. Conservatory Drive East would be

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[4] Beach Chalet Restoration, Categorical Exemption, June 18, 1993. Approved by the Recreation and Park Commission and by Caltrans.

Table 31a: Weekday Level of Service Results for Signalized Intersections

1995 Weekday Peak Conditions

	Base Case		Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Signalized Intersection	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Stanyan/Fulton	**50.1**	**E**	**72.1**	**F**	28.5	D	28.5	D	28.5	D
2. Arguello/Fulton	9.4	B	9.8	B	10.2	B	10.2	B	10.2	B
3. 8th/Fulton	11.3	B	11.4	B	11.3	B	11.3	B	11.3	B
4. 25th/Fulton	12.0	B	12.0	B	12.0	B	12.2	B	12.2	B
5. 36th/Fulton	6.6	B	6.9	B	6.9	B	6.9	B	6.9	B
7. Stanyan/Kezar	17.5	C	18.0	C	18.1	C	18.1	C	18.1	C
7. Stanyan/Kezar w/xing	na	na	**52.6**	**E**	**52.8**	**E**	**52.8**	**E**	**52.8**	**E**
12. Crossover/MLK	19.3	C	19.3	C	19.3	C	21.6	C	21.6	C
14. Stanyan/Frederick	8.6	B	17.5	C	17.5	C	17.5	C	17.5	C
16. 9th/Lincoln	34.8	D	37.9	D	37.9	D	37.9	D	37.9	D
17. 19th-Crossover/Lincoln	35.1	D	35.1	D	35.1	D	**49.7**	**E**	**49.7**	**E**
20. Great Highway/Lincoln	14.1	B	14.6	B	14.6	B	14.6	B	14.6	B
21. 19th/Kirkham	12.2	B	12.2	B	12.2	B	12.3	B	12.3	B
22. 9th/Judah	7.6	B	7.6	B	7.6	B	7.6	B	7.6	B
23. 19th/Judah	13.9	B	13.9	B	13.9	B	14.0	B	14.0	B
24. 9th/Irving	8.0	B	8.0	B	8.0	B	8.0	B	8.0	B
25. 19th/Irving	12.3	B	12.3	B	12.3	B	13.4	B	13.4	B
26. Sunset/Lincoln	na	na	na	na	na	na	na	na	24.7	C

2005 Weekday Peak Conditions

	Base Case		Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Signalized Intersection	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Stanyan/Fulton	**76.2**	**F**	**111.7**	**F**	37.0	D	37.0	D	37.0	D
2. Arguello/Fulton	9.9	B	10.6	B	11.3	B	37.0	D	37.0	D
3. 8th/Fulton	12.0	B	12.2	B	12.1	B	12.1	B	12.1	B
4. 25th/Fulton	12.4	B	12.4	B	12.4	B	12.6	B	12.6	B
5. 36th/Fulton	6.8	B	7.1	B	7.1	B	7.1	B	7.1	B
7. Stanyan/Kezar	37.5	D	38.7	D	38.9	D	38.9	D	38.9	D
7. Stanyan/Kezar w/xing	na	na	**115.2**	**F**	**115.7**	**F**	**115.7**	**F**	**115.7**	**F**
12. Crossover/MLK	**42.0**	**E**	**42.0**	**E**	**42.0**	**E**	**41.0**	**E**	**41.0**	**E**
14. Stanyan/Frederick	9.5	B	28.9	D	28.9	D	28.9	D	28.9	D
16. 9th/Lincoln	**53.1**	**E**	**57.3**	**E**	**57.3**	**E**	**57.3**	**E**	**57.3**	**E**
17. 19th-Crossover/Lincoln	**72.8**	**F**	**72.8**	**F**	**72.8**	**F**	**103.5**	**F**	**103.5**	**F**
20. Great Highway/Lincoln	15.5	C	16.3	C	16.3	C	16.3	C	16.3	C
21. 19th/Kirkham	16.6	C	16.6	C	16.6	C	16.8	C	16.8	C
22. 9th/Judah	7.9	B	7.9	B	7.9	B	7.9	B	7.9	B
23. 19th/Judah	23.6	C	23.6	C	23.6	C	8.4	B	8.4	B
24. 9th/Irving	8.4	B	8.4	B	8.4	B	8.4	B	8.4	B
25. 19th/Irving	17.6	C	17.6	C	17.6	C	19.0	C	19.0	C
26. Sunset/Lincoln	na	na	na	na	na	na	na	na	34.0	D

Note:
Bold = LOS E or LOS F.

What's included in each "scenario"?

- "Base Case" includes existing traffic volumes for 1995 conditions and existing traffic volumes inflated by a 1 percent annual growth rate for 2005 conditions (i.e., about 10% higher than 1995 conditions). "Base Case" does not include any transportation projects proposed in the *Draft Master Plan*.
- "Scenario 1" includes all of the transportation projects proposed in the Draft Master Plan, except the Sunset Boulevard closure, the Crossover Drive/MLK Jr. Drive turn prohibition, and the Stanyan Street/Fulton Street improvements.
- "Scenario 2" includes all of the transportation projects proposed in the Draft Master Plan, except the Sunset Boulevard closure and the Crossover Drive/MLK Jr. Drive turn prohibition.
- "Scenario 3" includes all of the transportation projects proposed in the Draft Master Plan, except the Sunset Boulevard closure.
- "Scenario 4" includes all of the transportation projects proposed in the Draft Master Plan.

Table 31b: Sunday Level of Service Results for Signalized Intersections

1995 Sunday Peak Conditions

	Base Case		Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Signalized Intersection	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Stanyan/Fulton	**41.6**	**E**	**41.6**	**E**	20.7	C	20.7	C	20.7	C
2. Arguello/Fulton	6.2	B	6.2	B	6.2	B	6.2	B	6.2	B
3. 8th/Fulton	9.2	B	9.2	B	9.2	B	9.2	B	9.2	B
4. 25th/Fulton	9.4	B	9.4	B	9.4	B	9.7	B	9.7	B
5. 36th/Fulton	6.2	B	6.5	B	6.5	B	6.5	B	6.5	B
7. Stanyan/Kezar	13.3	B	13.2	B	13.2	B	13.2	B	13.2	B
7. Stanyan/Kezar w/xing	na	na	36.2	D	36.2	D	36.2	D	36.2	D
12. Crossover/MLK	10.0	B	10.0	B	10.0	B	9.8	B	9.8	B
14. Stanyan/Frederick	13.1	B	20.3	C	20.3	C	20.3	C	20.3	C
16. 9th/Lincoln	8.3	B	8.5	B	8.5	B	8.5	B	8.5	B
17. 19th-Crossover/Lincoln	18.7	C	18.7	C	18.7	C	28.2	D	28.2	D
20. Great Highway/Lincoln	15.9	C	17.4	C	17.4	C	17.4	C	17.4	C
21. 19th/Kirkham	11.8	B	11.8	B	11.8	B	11.8	B	11.8	B
22. 9th/Judah	7.7	B	7.7	B	7.7	B	7.7	B	7.7	B
23. 19th/Judah	10.3	B	10.3	B	10.3	B	10.3	B	10.3	B
24. 9th/Irving	7.3	B	7.3	B	7.3	B	7.3	B	7.3	B
25. 19th/Irving	10.2	B	10.2	B	10.2	B	11.1	B	11.1	B
26. Sunset/Lincoln	na	na	na	na	na	na	na	na	20.5	C

2005 Sunday Peak Conditions

	Base Case		Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Signalized Intersection	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Stanyan/Fulton	**64.1**	**F**	**64.1**	**F**	24.3	C	24.3	C	24.3	C
2. Arguello/Fulton	6.4	B	6.4	B	6.4	B	6.4	B	6.4	B
3. 8th/Fulton	9.7	B	9.7	B	9.7	B	9.7	B	9.7	B
4. 25th/Fulton	11.3	B	11.3	B	11.3	B	11.5	B	11.5	B
5. 36th/Fulton	6.4	B	6.6	B	6.6	B	6.6	B	6.6	B
7. Stanyan/Kezar	18.9	C	18.6	C	18.6	C	18.6	C	18.6	C
7. Stanyan/Kezar w/xing	na	na	**81.2**	**F**	**81.2**	**F**	**81.2**	**F**	**81.2**	**F**
12. Crossover/MLK	11.0	B	11.0	B	11.0	B	11.1	B	11.1	B
14. Stanyan/Frederick	17.7	C	33.2	D	33.2	D	33.2	D	33.2	D
16. 9th/Lincoln	8.9	B	9.1	B	9.1	B	9.1	B	9.1	B
17. 19th-Crossover/Lincoln	37.0	D	37.0	D	37.0	D	**60.6**	**F**	**60.6**	**F**
20. Great Highway/Lincoln	16.0	C	18.0	C	18.0	C	18.0	C	18.0	C
21. 19th/Kirkham	14.0	B	14.0	B	14.0	B	14.0	B	14.0	B
22. 9th/Judah	7.9	B	7.9	B	7.9	B	7.9	B	7.9	B
23. 19th/Judah	11.9	B	11.9	B	11.9	B	11.9	B	11.9	B
24. 9th/Irving	7.5	B	7.6	B	7.6	B	7.3	B	7.3	B
25. 19th/Irving	11.3	B	11.3	B	11.3	B	12.6	B	12.6	B
26. Sunset/Lincoln	na	na	na	na	na	na	na	na	21.1	C

Note:
Bold = LOS E or LOS F.

What's included in each "scenario"?

- "Base Case" includes existing traffic volumes for 1995 conditions and existing traffic volumes inflated by a 1 percent annual growth rate for 2005 conditions (i.e., about 10% higher than 1995 conditions). "Base Case" does not include any transportation projects proposed in the *Draft Master Plan*.
- "Scenario 1" includes all of the transportation projects proposed in the Draft Master Plan, except the Sunset Boulevard closure, the Crossover Drive/MLK Jr. Drive turn prohibition, and the Stanyan Street/Fulton Street improvements.
- "Scenario 2" includes all of the transportation projects proposed in the Draft Master Plan, except the Sunset Boulevard closure and the Crossover Drive/MLK Jr. Drive turn prohibition.
- "Scenario 3" includes all of the transportation projects proposed in the Draft Master Plan, except the Sunset Boulevard closure.
- "Scenario 4" includes all of the transportation projects proposed in the Draft Master Plan.

Table 32a: Weekday Level of Service Results for Unsignalized Intersections

1995 Weekday Peak Conditions

Unsignalized Intersection	Movement	Base Case LOS	Scenario 1 LOS	Scenario 2 LOS	Scenario 3 LOS	Scenario 4 LOS
6. Stanyan/Fell	SB LT	B	B	B	B	B
	WB LT(s)	F	F	F	F	F
	WB RT(s)	B	C	C	C	C
8. Kezar/JFK	EB LT(s)	F	F	F	F	F
	EB RT(s)	*F*	*F*	*F*	*F*	*F*
9. 36th/JFK	SB RT(s)	A	A	A	A	A
10. Great Highway/JFK	SB LT	B	B	B	B	B
	WB LT(s)	*F*	*F*	*F*	*F*	*F*
	WB RT(s)	A	A	A	A	A
11. 9th/MLK	SB LT	A	A	A	A	A
	WB LT(s)	C	C	C	C	C
	WB RT(s)	A	A	A	A	A
13. Sunset/MLK	NB(s)	F	F	F	C	na
	EB(s)	F	F	F	F	A
	WB(s)	F	F	F	F	A
15. 3rd/Lincoln	NB LT(s)	F	F	F	F	F
	NB RT(s)	B	B	B	B	B
18. 36th/Lincoln	NB LT(s)	F	F	F	F	na
	NBRT(s)	B	B	B	C	na
19. 37th/Lincoln	WB LT(s)	C	C	C	C	na

2005 Weekday Peak Conditions

Unsignalized Intersection	Movement	Base Case LOS	Scenario 1 LOS	Scenario 2 LOS	Scenario 3 LOS	Scenario 4 LOS
6. Stanyan/Fell	SB LT	B	B	B	B	B
	WB LT(s)	F	F	F	F	F
	WB RT(s)	B	C	C	C	C
8. Kezar/JFK	EB LT(s)	F	F	F	F	F
	EB RT(s)	*F*	*F*	*F*	*F*	*F*
9. 36th/JFK	SB RT(s)	A	A	A	A	A
10. Great Highway/JFK	SB LT	B	B	B	B	B
	WB LT(s)	F	F	F	F	F
	WB RT(s)	A	A	A	A	A
11. 9th/MLK	SB LT	A	A	A	A	A
	WB LT(s)	C	C	C	C	C
	WB RT(s)	A	A	A	A	A
13. Sunset/MLK	NB(s)	F	F	F	D	na
	EB(s)	F	F	F	F	A
	WB(s)	F	F	F	F	A
15. 3rd/Lincoln	NB LT(s)	F	F	F	F	F
	NB RT(s)	B	B	B	B	B
18. 36th/Lincoln	NB LT(s)	F	F	F	F	na
	NBRT(s)	B	B	B	C	na
19. 37th/Lincoln	WB LT(s)	C	C	C	D	na

:
old = Over 120 seconds of delay for under 100 vehicles per hour.
old = Over 120 seconds of delay for over 100 vehicles per hour.

Table 32b : Sunday Level of Service Results for Unsignalized Intersections

1995 Sunday Peak Conditions

Unsignalized Intersection	Movement	Base Case LOS	Scenario 1 LOS	Scenario 2 LOS	Scenario 3 LOS	Scenario 4 LOS
6. Stanyan/Fell	SB LT	B	B	B	B	B
	WB LT(s)	F	F	F	F	F
	WB RT(s)	B	B	B	B	B
8. Kezar/JFK	EB LT(s)	na	na	na	na	na
	EB RT(s)	na	na	na	na	na
9. 36th/JFK	SB RT(s)	A	A	A	A	A
10. Great Highway/JFK	SB LT	B	B	B	B	B
	WB LT(s)	*F*	*F*	*F*	*F*	*F*
	WB RT(s)	B	A	A	A	A
11. 9th/MLK	SB LT	A	A	A	A	A
	WB LT(s)	B	C	C	C	C
	WB RT(s)	A	A	A	A	A
13. Sunset/MLK	NB(s)	C	C	C	B	na
	EB(s)	C	C	C	C	A
	WB(s)	B	B	B	B	A
15. 3rd/Lincoln	NB LT(s)	F	F	F	F	F
	NB RT(s)	B	B	B	B	B
18. 36th/Lincoln	NB LT(s)	E	E	E	E	na
	NBRT(s)	A	A	A	B	na
19. 37th/Lincoln	WB LT(s)	C	C	C	C	na

2005 Sunday Peak Conditions

Unsignalized Intersection	Movement	Base Case LOS	Scenario 1 LOS	Scenario 2 LOS	Scenario 3 LOS	Scenario 4 LOS
6. Stanyan/Fell	SB LT	B	B	B	B	B
	WB LT(s)	F	F	F	F	F
	WB RT(s)	B	B	B	B	B
8. Kezar/JFK	EB LT(s)	na	na	na	na	na
	EB RT(s)	na	na	na	na	na
9. 36th/JFK	SB RT(s)	A	A	A	A	A
10. Great Highway/JFK	SB LT	C	B	B	B	B
	WB LT(s)	*F*	*F*	*F*	*F*	*F*
	WB RT(s)	B	A	A	A	A
11. 9th/MLK	SB LT	A	A	A	A	A
	WB LT(s)	C	C	C	C	C
	WB RT(s)	A	A	A	A	A
13. Sunset/MLK	NB(s)	C	C	C	B	na
	EB(s)	D	D	D	D	A
	WB(s)	B	B	B	B	A
15. 3rd/Lincoln	NB LT(s)	F	F	F	F	F
	NB RT(s)	C	C	C	C	C
18. 36th/Lincoln	NB LT(s)	E	E	E	F	na
	NBRT(s)	B	B	B	B	na
19. 37th/Lincoln	WB LT(s)	C	C	C	D	na

N es:
Bold = Over 120 seconds of delay for under 100 vehicles per hour.
Bold = Over 120 seconds of delay for over 100 vehicles per hour.

retained as a trail for non-motorized users. Note that the *Draft Master Plan* proposes to relocate the horseshoe courts in the vicinity of the Senior Center. Closure of Conservatory Drive East would shift traffic to and substantially affect the Stanyan Street/Fulton Street intersection under the intersection's current geometry and signal phasing (Scenario 1). This intersection is expected to operate at LOS F in the future with background traffic.

Middle Drive West: The current routing of the 49 Mile Scenic Drive would be severed with the closure of a portion of this roadway.

Music Concourse Roadway: Under the *Draft Master Plan's* proposed plan, about 100 feet of the existing one-way westbound bus lane into the Music Concourse bus parking area would be converted to a two-way roadway, where the eastbound lane would serve autos exiting from the Academy of Sciences' parking lot to Academy Drive. Potential bus/auto conflicts could arise in the converted two-way segment due to short sight distances and the introduction of two new bus/auto turning conflict points within a short area.

Waller Street: The permanent closure of Waller Street, between Stanyan Street and Kezar Drive, would affect the 3rd Avenue/Lincoln Way intersection. Currently, the stop sign-controlled left-turn movement serves about 200 vehicles during both the weekday and Sunday peak hours. Although these movements currently operate at LOS F, their associated delays likely do not warrant installation of a traffic signal. With Waller Street's closure, however, from 120 to 160 additional vehicles could be added to the left-turn lane. Larger increases would be expected by year 2005 due to cumulative growth in traffic. These additional left-turns would exacerbate the delays at the intersection and could warrant installation of a traffic signal.

Waller Street's closure would also divert between 270 and 330 vehicles per hour to eastbound Frederick Street (turning left at Stanyan Street) and 120 to 160 vehicles per hour to southbound Stanyan Street (turning right at Frederick Street). These diversions would degrade the Frederick Street/Stanyan Street intersection's performance from LOS B to LOS C during weekday and Sunday peak hours considering existing traffic volumes. By the year 2005, weekday peak conditions would degrade from LOS B to LOS D and Sunday peak conditions would degrade from LOS C to LOS D. LOS D conditions are considered acceptable.

An unsignalized crosswalk across Stanyan Street (at Beulah Street) provides pedestrian access to the Kezar Pavilion. The crosswalk is delineated by two white stripes only, no advance warning signing is provided. With the closure of Waller Street; from 400 to 500 additional vehicles per hour would pass the crosswalk during peak periods. The crosswalk is heavily used by children when the Pavilion has special recreation programs. Without improved delineation, an increase in potential auto/pedestrian conflicts could arise as traffic volumes increase. However, this impact is not considered significant according to CEQA.

47th Avenue: Closure of 47th Avenue just north of JFK Drive would preclude automobile access to the golf course and archery field via JFK Drive. However, users arriving by car could access these facilities via Fulton Street (JFK Drive to the Great Highway or Chain of Lakes Drive then to Fulton Street). Based on observation, the majority of golfers and archers travel via Fulton Street currently. Traffic generation to these facilities is expected to remain relatively low.

Other Roadway Closures: None of the other proposed roadway closures would preclude access to a Park facility, impact a study intersection, or divert substantial traffic volumes to other Park roadways. However, all proposed roadway closures could slightly increase emergency vehicle response times unless alternative emergency routes are used. This is not considered a significant impact since alternative time-competitive routes would be available.

Tea Garden Drive Alternatives: From a traffic perspective, both traffic calming alternatives would reduce travel speeds and improve pedestrian crossings along the drive. However, congestion would likely occur during any car or bus loadings and unloadings as the right-hand lane would be blocked.

Stanyan Street/Kezar Drive: With inclusion of an "all-bicycle" traffic signal phase whereby all motorized vehicle traffic is stopped while eastbound and westbound bicyclists cross the intersection, weekday peak hour operations would degrade from LOS C with 18 seconds of average delay to LOS E with 53 seconds of delay assuming existing intersection geometry and signal phasing (Scenario 1) and 1995 conditions. In the year 2005, the service level would degrade from LOS D with 38 seconds of average delay to LOS F with over 115 seconds of delay, a significant impact.

During the Sunday peak hour, the "all-bicycle" phase would degrade operations from LOS B with 13 seconds of average delay to LOS D with 36 seconds of delay assuming 1995 conditions. In the year 2005, the service level would degrade from LOS C with 19 seconds of average delay to LOS F with 81 seconds of delay, a significant impact. Without an "all-bicycle" phase, peak hour service levels would remain unchanged and average delays would not increase by more than one second per vehicle.

Third Avenue/Lincoln Way: Due to the proposed Waller Street closure, from 120 to 160 additional vehicles could be added to the stop sign-controlled left-turn movement, exacerbating current LOS F conditions.

Parking Limits in East Park: The proposed commuter parking restrictions would slightly reduce overall traffic volumes along several roadways in the eastern portion of the Park, but would likely increase turning movements at intersections outside of the Park as commuters search for other available on-street parking spaces. It is difficult to predict which intersections may be affected and to what extent the intersections would be affected. On the other hand, it is predicted that traffic volumes would slightly decline at most of the study intersections. See "Parking Impacts" for a discussion on how the parking limits could impact parking along streets in adjacent neighborhoods.

Beach Chalet Visitor Center: Prior to renovation, the single access point to the vacant building's parking lot was on the east side of the Great Highway. This driveway was narrow and required slow right turning movements from the south. Motorists waiting to turn left into the existing driveway from the north needed to queue in the Great Highway's striped center median. An exclusive left-turn storage bay did not exist.

Since the modifications, two driveways are now located adjacent to the Great Highway. Both serve two-way traffic. A left-turn refuge bay along the Great Highway was installed. No significant impacts resulted as part of the implemented access plan.

Traffic Impacts of Scenarios 1 and 2

In addition to the above traffic impacts, the following traffic impacts would also result under Scenarios 1 and 2 (see Tables 31a, 31b, 32a, and 32b):

Stanyan Street/Fulton Street: Under Scenario 1 and due to the proposed Conservatory Drive East closure, this intersection would degrade from LOS E with 50 seconds of average delay to LOS F with 72 seconds of delay assuming 1995 weekday peak hour conditions. In the year 2005, base case LOS F conditions would continue, but average delays would increase from 76 seconds to 112 seconds. The predicted over-capacity conditions at this intersection would cause extensive vehicle queuing throughout the peak period. This intersection would not experience any degradation in service during Sunday peak hour conditions.

However, in Scenario 2, the Stanyan Street/Fulton Street intersection would improve to an acceptable service level and with less motorist delay than under Scenario 1 due to the proposed intersection capacity improvements. The intersection would operate at LOS D during both 1995 and 2005 weekday peak hour conditions.

Traffic Impacts of Scenario 3

Scenario 3 includes all of the projects proposed in the Draft Master Plan, except for the Sunset Boulevard closure. In addition to the traffic impacts which would occur under all of the Scenarios (see "Traffic Impacts of All Scenarios") and those under Scenario 2, the following traffic impacts would also occur under Scenario 3 (see Tables 31a, 31b, 32a, and 32b):

19th Avenue-Crossover Drive/Lincoln Way: Due to traffic re-routing from Crossover Drive, during the weekday peak hour this intersection would degrade from LOS D with 35 seconds of average delay to LOS E with 50 seconds of delay assuming 1995 conditions, a significant impact. In the year 2005, base case LOS F conditions would continue, but average delays would increase from 73 seconds to 104 seconds. The predicted over-capacity conditions at this intersection would cause extensive vehicle queuing throughout the peak period.

During the Sunday peak hour, this intersection would degrade from LOS C with 19 seconds of average delay to LOS D with 28 seconds of delay assuming 1995 conditions. In the year 2005, the intersection would degrade from LOS D with 37 seconds of delay to LOS F with 61 seconds of delay.

36th Avenue/Lincoln Way: The left-turn movement from northbound 36th Avenue to westbound Lincoln Way would degrade from LOS E to LOS F during year 2005 Sunday peak hour conditions. During other periods, it would operate similar to baseline conditions.

Crossover Drive/MLK Jr. Drive: This project would slightly increase traffic volumes along Kirkham, Judah and Irving Streets just east of Sunset Boulevard (by less than 5 percent) as vehicles divert from Sunset Boulevard to 19th Avenue. However, as traffic would be expected to "loop" from Lincoln Way to 19th Avenue via 18th or 20th Avenues and Irving Street, the most affected roadway segments would be along Irving Street between 18th and 19th Avenue and between 19th and 20th Avenues. Between 18th and 19th Avenues, Irving Street's westbound traffic levels would increase by about 190 to 220 vehicles per hour during 1995 and 2005 weekday and Sunday peak hour conditions, representing westbound traffic volume increases of almost 50 percent. Between 19th and 20th Avenues, Irving Street's eastbound traffic levels would increase by about 90 to 190 vehicles per hour, equal to traffic increases of about 15 percent to 40 percent. Such traffic volume increases would further congest the roadway segments which are lined with retail stores and on-street parking and are characterized by heavy pedestrian movement and slow traffic speeds.

In addition, this project would increase traffic levels on 36th Avenue, between Lincoln Way and Irving Street, by 170 to 280 vehicles per hour during 1995 and 2005 weekday and Sunday peak hour conditions, equating to northbound traffic volume increases of about 60 percent to 70 percent.

With the proposed eastbound MLK Jr. Drive to northbound Crossover Drive left-turn prohibition, some motorists may drive easterly through the intersection, make an illegal U-turn on MLK Jr. Drive just east of the intersection, then travel a short distance west on MLK Jr. Drive before turning right onto northbound Crossover Drive. The U-turn movement could often result in a three-point turning maneuver (forward-reverse-forward) due to the roadway width and common presence of on-street parking. Any illegal U-turn movement could be unsafe and conflict with other vehicles, as well as bicycles.

Traffic Impacts of Scenario 4

This scenario includes all of the projects proposed in the Draft Master Plan. The associated traffic impacts would be the same as those under Scenario 3, plus (see Tables 32a, 32b, 33a, and 33b):

Sunset Boulevard: The current routing of the 49 Mile Scenic Drive along Sunset Boulevard to MLK Jr. Drive would be severed due to the closure of Sunset Boulevard between Lincoln Way and MLK Jr. Drive.

Sunset Boulevard/Lincoln Way: This proposed at-grade intersection would operate at LOS C under 1995 and 2005 Sunday peak conditions and under 1995 weekday peak conditions. LOS D with 34 seconds of average delay would occur under 2005 weekday peak conditions. While overall the intersection would operate acceptably, eastbound Lincoln Way motorists turning (south) onto Sunset Boulevard would experience weekday peak hour delays from 37 seconds (1995) to 55 seconds (2005), prompting some of these motorists to turn right onto 37th Avenue instead and gain access to Sunset Boulevard via Irving Street.

In addition, northbound Sunset Boulevard motorists turning right (east) onto Lincoln Way would experience weekday peak hour delays from 26 seconds (1995) to 46 seconds (2005), even assuming a right-turn arrow signal indication which overlaps with northbound to eastbound and the westbound to southbound left-turn movements. Many of these motorists would be inclined to exit Sunset Boulevard at Irving Street, turn left on 36th Avenue, and then turn right onto Lincoln Way.

Transit Impacts

None of the roadway closures proposed in the *Draft Master Plan* would significantly impact transit operations. However, the transit system would be impacted by some of the proposed traffic calming measures, intersection improvements, commuter parking restrictions, and building and structure improvements, as discussed below.

Tea Garden Drive Alternatives: A bus stop and shelter for the 44-O'Shaughnessy exists on the north side of Tea Garden Drive in front of the de Young Museum. Under both alternatives, a stopped bus would block the right-hand lane, possibly congesting the drive. Under both alternatives, the existing transit shelter may need to be relocated.

Stanyan Street/Fulton Street: If this intersection is modified for the addition of a second northbound-to-westbound left-turn lane, a bus idling at the existing bus stop on Fulton Street just west of Stanyan Street would likely block turning movements from the new lane. In addition, the overhead trolley wires are aligned with the existing left-turn lane and may need to be realigned over the proposed turning lane to enable bus movements.

Parking Limits in East Park: A slight increase in transit use in routes serving the UCSF area would be expected as a result of the proposed commuter parking restrictions (see "Parking Impacts"). However, this is not considered a significant impact since it is likely that few commuter vehicle-trips would shift to transit and there are several transit lines to choose from.

Powell Street Railway Station: If the existing structure were used as a MUNI bus stop, adjacent on-street parking spaces along Fulton Street would need to be removed (see "Parking Impacts"). In addition, the overhead trolley wires passing in front of the structure may need to be moved closer to the structure to enable the 5-Fulton, 21-Hayes, and special event buses to pull up to the curb. The existing transit shelter in the southeast corner of 8th Avenue/Fulton Street may be removed.

Parking Impacts

The parking limits and roadway closures proposed in the *Draft Master Plan* would not allow commuter parking on several of the Park's recreational roadways. In addition, the proposed Stanyan Street/Fulton Street intersection improvement would remove several public parking spaces near the intersection. The following sections describe parking impacts which would likely occur within the Park and in the areas northeast and southeast of the Park.

Parking Impacts Within the Park: Within the Park, commuter parking would be displaced due to proposed roadway closures and parking restrictions. Several roadways that are proposed for closure would lose their on-street parking spaces. However, of all of the roadway closures proposed, only the Conservatory Drive East and Waller Street closures would impact parking conditions (see "Parking Impacts Northeast of the Park" and "Parking Impacts Southeast of the

Park"). All of the other short roadway segments proposed for closure have low parking demands which can be accommodated on nearby roadways. The proposed commuter parking restrictions would force commuters to seek available on-street parking spaces in the adjacent neighborhoods, as discussed below.

Parking Impacts Northeast of the Park: A recent parking survey determined that about 50 commuter vehicles park each weekday on Conservatory Drive East and about 20 vehicles park on JFK Drive near McLaren Lodge. All of these parking spaces would be removed under the *Draft Master Plan*. In addition, about 14 parking spaces would be removed with the proposed Stanyan Street/Fulton Street intersection improvement.

The closure of Conservatory Drive East and the proposed parking prohibitions along JFK Drive would force about 70 commuter vehicles to seek available close-in, free, on-street parking spaces northeast of the Park. Excluding parking areas with residential parking permit "L" designations and spaces where weekday parking is not permitted between 4 p.m. and 6 p.m., and considering where commuters currently park and work (most of the commuters parking along Conservatory Drive East appear destined for the area east of Stanyan Street while some of the parkers along JFK Drive seem to be destined for McLaren Lodge), commuters would likely seek parking spaces within the three blocks between Fulton Street, 4th Avenue, Cabrillo Street, and Arguello Street and on the south side of Fulton Street between Arguello Street and Stanyan Street. A total of about 80 unused parking spaces are available for commuters in this area. Therefore, the existing street network could accommodate all 70 of the displaced commuter vehicles.

If the Stanyan Street/Fulton Street intersection is modified for the addition of a second northbound to westbound left-turn lane, about eight parking spaces on the east side of Stanyan Street (south of Fulton Street) would need to be removed to enable restriping.[5]

As noted previously (see "Transit Impacts"), a bus idling at the existing bus stop on Fulton Street just west of Stanyan Street would block turning movements from the new left-turn lane. If the bus stop was relocated one-half block to the west to prevent intersection back-ups, about six on-street parking spaces on Fulton Street (residential permit "L") would also need to be removed.

Almost all of the on-street parking east of Arguello Street is subject to residential parking permit "L" designations. There are about 150 spaces unused during Sunday afternoons and about 240 spaces unused during weekday afternoons. Therefore, there appears to be ample alternative spaces available for any displaced parking.

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[5] It is recommended that parking be prohibited on the east side of Stanyan Street from Fulton Street to about 360-feet south. Due to numerous driveways, about eight parking spaces would be removed. The roadway's grade changes to a lower slope at about the 360-foot point.

If the portal at 7th and Fulton were used as a MUNI bus stop, replacing the existing bus stop and shelter located just to the west of 8th and Fulton, about 195-feet of existing parking on Fulton Street in front of the portal would need to be removed to serve buses.[6]

Parking Impacts Southeast of the Park. A recent weekday parking survey determined that about 430 commuter vehicles currently park on roadways in the southeast area of the Park that are proposed to have three or four-hour parking restrictions or to be closed (Figure 24, page 125).[7] Therefore, all of these vehicles would be displaced under the Draft Master Plan's proposal.

Most of the commuter parking currently occurring in the Park occurs in the southeast section of the Park. Most of the commuters who park in this area are accessing areas south of the Park, most notably, the University of California at San Francisco's campus which fronts Parnassus Avenue between Edgewood Avenue and 4th Avenue. A small percentage of commuters appear to use the Park streets as a "park-and-ride" facility, whereby after parking their vehicles, they walk to a nearby bus stop or the N Judah line.

The first course of action for most of the 430 displaced commuter vehicles would be to seek another available, close-in and free, on-street parking space. Considering the distances commuters are willing to walk from their parked cars today (e.g. from MLK Drive and from 9th Avenue within the Park), it is reasonable to assume commuters would seek parking spaces south of Lincoln Way and Oak Street and as far west as 12th Avenue and as far east as Clayton Street.

Approximately 200 on-street parking spaces are typically unused during the midday on weekdays east of 9th Avenue. Between 9th Avenue and 12th Avenue, almost another 50 spaces are available. However, very few of these 250 unused spaces would accommodate weekday commuters since many of the spaces are in two-hour limit areas within the residential parking permit "J" zone, some are along the north side of Lincoln Way where parking is prohibited weekday afternoons, and many others are metered parking spaces (e.g. along segments of Haight Street, Stanyan Street, Cole Street and Irving Street).

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[6] A 195-foot long bus zone currently exists to the south to serve the 5-Fulton, 21-Hayes, and special event buses.

[7] This does not include Arguello Boulevard south of Frederick Street. Arguello currently accommodates about 20 commuter vehicles but is not proposed to have parking restrictions.

After accounting for these commuter parking “restrictions” already in place, a total of only about 70 unused parking spaces would be available for commuters within a reasonable walking distance to the UCSF campus area and existing transit stops.

Therefore, the existing network of on-street parking spaces would only accommodate about 70 of the 430 displaced commuter vehicles---assuming displaced commuters are willing to circulate through the neighborhoods in search of these extremely hard-to-find spaces. In other words, at least 360 commuter vehicles would not be accommodated within existing public, on-street parking spaces.

During weekdays a maximum of about 360 existing commuter vehicles would be required to find parking elsewhere or travel via a different mode. A small percentage of the 360 remaining commuter vehicle-trips would likely shift to transit or carpooling.

During weekends, no significant parking impacts are expected as a result of the *Draft Master Plan*'s proposed parking limits and roadway closures. It has been observed that most of the vehicles on the Park’s roadways during weekends are park-related trips with visits in the three to four-hour range.

Pedestrian and Bicyclist Impacts

Roadway Closures and Traffic Calming Measures: The intent of most of the *Draft Master Plan’s* proposed roadway closure and traffic calming measures is to minimize the impact of motor vehicles within the Park while improving access and circulation by modes such as pedestrians and bicycles. None of the proposed roadway closures would impact pedestrians or bicyclists as access would be maintained for these modes and inherent conflicts with motor vehicles would be removed at particular locations. All of the traffic calming measures, except the Crossover Drive/MLK Drive left-turn prohibition, would narrow roadways or intersections to enable reduced motor vehicle speeds, improved sight distances for all users, and shorter roadway crossings for pedestrians. However, the Tea Garden Drive alternatives could limit bicycle safety along the drive.

Tea Garden Drive: Under both design options there would be two 12-foot vehicle travel lanes, but no bicycle lane. Bicyclists are currently accommodated safely within the existing wide travel lanes. However, one of the purposes of the narrowing project is to slow down motorized vehicles. Therefore, bicyclists may likely co-exist with cars in the same lanes at about the same speeds.

Stanyan Street/Kezar Drive: At this intersection, the *Draft Master Plan* proposes an “all-bicycle” signal phase, when soon after being actuated, all motorized vehicle traffic approaching the intersection would receive a red light. Bicycle traffic would then receive a green indication, allowing several bicycle movements to occur simultaneously: a straight-through movement from the proposed westbound Fell Street bike lane to the proposed westbound Kezar Drive bike lane, a diagonal movement from the existing Panhandle bike path to the proposed westbound Kezar Drive bike lane, and a straight-through movement from the proposed eastbound Kezar Drive center median one-way bike path to the existing Panhandle bike path. Ignoring the significant auto delays which would occur due to the "all-bicycle" phase (see "Traffic Impacts"), the exclusive signal phase and proposed median pathway would pose several unsafe conditions:

- Bicyclists traveling westbound along the Panhandle bike path may elect to cross directly onto Kezar Drive's one-way eastbound center median pathway instead of diagonally to the westbound bike lane. This could cause conflicts in three areas: in the middle of the Stanyan Street/Kezar Drive intersection, along the median bike path, and in the middle of the Kezar Drive/Kezar Drive intersection. In all three locations, either an unsuspecting eastbound bicyclist, the wrong-way westbound bicyclist, or both, may swerve into an automobile travel lane along Kezar Drive to avoid colliding with the other approaching bicyclist.

- The second potentially unsafe condition would occur if pedestrians used the proposed Kezar Drive center median pathway. While problematic pedestrian crossings could occur at the Kezar Drive/Kezar Drive intersection, the "all-bicycle" green light at the Stanyan Street/Kezar Drive intersection would likely be too short to allow safe pedestrian crossings across Stanyan Street.

- Thirdly, if the proposed Kezar Drive center median pathway was merely striped within the existing roadway profile, i.e., not raised with curbing or other effective delineation, moving automobiles may infringe upon the path.

- The fourth potentially unsafe conflict could occur between bicyclists using the diagonal crossing and motorists waiting to turn right onto westbound Kezar Drive from southbound Stanyan Street. Motorists wishing to make right-turns on red are accustomed to looking for gaps in the outside lane of the approaching automobile traffic stream. Therefore, a right-turning motorist may not see a bicyclist crossing the intersection at a peculiar angle. This impact would be alleviated if DPT installs a "No Right Turn on Red" sign as proposed as part of a currently planned improvement project.

- The fifth potential conflict zone would be the placement of the eastbound bicycle lane on the west leg of the Kezar Drive/JFK Drive intersection. The bicycle lane would be located to the number of construction-related trips would likely occur for major projects such as construction of reservoirs and lake dredging and lining.

Impacts of Construction-Related Vehicle Parking: Construction workers would likely park their construction or personal vehicles near work sites. Depending on the number of construction workers and the location of particular projects, parking for these vehicles could displace parking spaces normally used by Park visitors during weekdays. However, since most construction would likely occur during weekdays, ample alternative parking would likely exist nearby for Park visitors. It is likely that some construction equipment could be stored within on-street parking spaces during both weekdays and weekends.

D. NOISE

Potential noise impacts associated with the Park Master Plan would generally be from two primary sources: increases in traffic on streets in and around Golden Gate Park due to changes proposed at intersections or changes to circulation patterns; and noise from construction activities and equipment (including truck traffic and construction worker traffic). Stationary sources of noise would also include pumps at wells and at the reservoir and lakes.

PARK LANDSCAPE ELEMENT

Noise from enclosed pumps at proposed new well sites is estimated to be 68 dBA, Ldn based on measurements taken 50 feet away from similar pumps at the SF Zoo and operating pumps in the Park. Noise levels established for the Park environment (67-70 dBA, Ldn) would not be substantially exceeded and impacts would be less than significant.

TRAFFIC NOISE (CIRCULATION ELEMENT)

A doubling of traffic volumes in the area would be necessary to produce an increase in ambient noise levels noticeable to most people (3 dBA). An increase of 10 dBA in ambient noise levels is perceived as a two-fold increase in loudness. None of the proposed Park Master Plan actions would result in a doubling of traffic on local streets. No significant noise impacts from traffic would result from the proposed Park Master Plan.

CONSTRUCTION NOISE

The Park Master Plan schedule shows construction activities associated with various plan elements taking place over a ten-year period starting in 1996. Proposed projects involving interior building renovation or exterior additions to existing buildings (Golf Clubhouse and Tennis Clubhouse additions, Urban Forestry Center Rehabilitation, County Fair Building Rehabilitation) and irrigation, landscape improvements, forestry improvements, play area or utility replacement projects would involve activities and small tools or equipment common to Park maintenance and repair activities. These projects would not substantially increase noise levels in the Park.

Several of the larger construction projects would involve use of heavy equipment, large trucks, impact tools, generators, pumps and other noise producing features. In particular, the lakes reconstruction projects, the proposed new underground reservoir and pump station, the reconstruction of the Conservatory and Rose House and the Equestrian Center, and the demolition of the Millwright's House and construction of a new visitor center, would all involve use of noisy construction equipment and activities.

During construction, temporary noise increases would result from the operation of heavy equipment and movement of construction material to the project site. The construction period would vary with each component of each project, ranging from between six months to over two years. The reservoir and pump station, Stow Lake, and the Arboretum projects would each be under construction for over two years (could extend longer depending on available funding). Construction noise levels would fluctuate depending on construction phase, equipment type and duration of use, distance between noise source and receptor, and presence or absence of buffers (walls, buildings, hills) between the noise source and the receptor. To estimate probable noise impacts, typical construction equipment and techniques are assumed.

Construction noise sources range from about 76 to 88 dBA for most types of construction equipment at 50 feet from the noise source with slightly higher levels of about 88 to 91 dBA for certain types of earthmoving and impact equipment. Noise levels from pile drivers can generate noise peaks of approximately 101 dBA at 50 feet. The rate of attenuation is about six decibels (dBA) for every doubling of distance from a point source. Noise levels at 25, 50 and 100 feet from the noise source for several types of typical construction equipment and potential noise attenuation are shown in Table 35. The values in Table 34 represent noise generation while equipment is operating at full capacity. Average noise levels over extended periods of time are somewhat lower as equipment cycles through periods of load interspersed with idle periods.

Construction work in the Park would primarily be performed between the hours of 7:00 a.m. and 5:00 p.m. In accordance with the City of San Francisco Noise Ordinance, Article 29 of the City Police Code, noise levels would not be in excess of 5 dBA over ambient[1] background levels measured at the nearest adjacent property line between the hours of 8:00 p.m. and 7:00 a.m. of the following day as a result of erecting, constructing, demolishing, excavating, altering or repairing any building or structure. The police code specifies that power equipment will not be operated if it exceeds 80 dBA measured at a distance of 100 feet from sensitive receptors (typically residential areas, hospitals schools). Impact tools, pavement breakers, and jackhammers are exempt from this requirement.

Equipment and trucks used for construction would utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of silencers, shields, shrouds, ducts, and engine enclosures) in order to minimize construction noise impacts. Prior to

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[1] Ambient noise is the all-encompassing noise associated with a given environment, being a composite of sounds from many sources, near and far.

TABLE 34: NOISE LEVELS AND ABATEMENT POTENTIAL OF CONSTRUCTION EQUIPMENT NOISE AT 25, 50 AND 100 FEET (in dBA)

	Noise Level at 25 Feet		Noise level at 50 Feet		Noise Level at 100 Feet	
Equipment	Without Feasible Controls /a/	With Feasible Controls /a/	Without Feasible Controls /a/	With Feasible Controls /a/	Without Feasible Controls /a/	With Feasible Controls /a/
Earthmoving						
Front Loaders	85	81	79	75	73	69
Backhoes	91	81	85	75	79	69
Dozers	86	81	80	75	74	69
Tractors	86	81	80	75	74	69
Scrapers	94	86	88	80	82	74
Graders	91	81	85	75	79	69
Trucks	97	81	91	75	85	69
Pavers	95	86	89	80	83	74
Materials Handling						
Concrete Mixer	91	81	85	75	79	69
Concrete Pump	88	81	82	75	76	69
Crane	89	81	83	75	77	69
Derrick	94	81	88	75	82	69
Stationary						
Pumps	82	81	76	75	70	69
Generator	84	81	78	75	72	69
Compressors	87	81	81	75	75	69
Impact						
Pile Drivers	107	101	101	95	95	89
Rock Drills	104	86	98	80	92	74
Jack Hammers	94	81	88	75	82	69
Pneumatic Tools	92	86	86	80	80	74
Other						
Saws	84	81	78	75	72	69
Vibrators	82	81	76	75	70	69
City Noise Limit	92	92	86	86	80	80

/a/ Estimated levels obtainable by selecting quieter procedures or machines and implementing noise-control features requiring no major redesign or extreme cost (e.g., improved mufflers, equipment redesign, use of silencers, shields, shrouds, ducts, and engine enclosures).

SOURCE: U.S. Environmental Protection Agency, , *Noise from Construction Equipment and Operation, Building Equipment, and Home Appliances.* December, 1971.

construction, all construction equipment (except for impact tools, pavement breakers and jackhammers) would be tested as part of the environmental compliance monitoring program for enforcement of mitigation measures to ensure that construction equipment noise does not exceed 80 dBA at 100 feet (as specified in Section 2907 of Article 29, Police Code).

When individual types of construction equipment are considered (see Table 34), peak noise levels generated by the operation of all types of construction equipment could exceed the 80 dBA criterion at 100 feet if feasible noise controls are not implemented. With feasible noise controls, peak noise levels would not exceed 80 dBA at 100 feet except when pile driving equipment is operated, and pile driving noise is exempt from this criterion but would exceed the 70 dBA, L_{dn} criteria for Park land. Pile driving may be necessary for construction of the reservoir (located in the central part of the Park off Middle Drive West where the existing wood compost activity is now located), but is not expected to be necessary for any other Park Master Plan proposed projects. Construction-related noise may annoy Park visitors within hearing range of construction. Scheduling of projects would phase construction to avoid long duration of construction noise in any one location over extended periods of time.

Noise peaks generated by construction equipment could result in temporary disturbance to Park visitors and staff in adjacent activity areas and buildings, if the noise audible in the interior of the building exceeds 45 to 60 dBA.[2] A typical building can reduce noise levels by 20 to 25 dBA with the windows closed, although the actual noise attenuation may vary depending on building construction and design. This noise reduction could be maintained only on a temporary basis in some cases since it assumes windows must remain closed at all times. Assuming a 20 to 25 dBA reduction with the windows closed, an exterior noise level of 70 to 80 dBA at receptors would maintain an acceptable interior noise environment for normal conversation.

Park Master Plan projects that would include construction activities and equipment estimated to exceed the 70 to 80 dBA levels are located in interior areas of the Park over 100 feet from adjacent residential areas surrounding the Park. In particular, the proposed reservoir and pump station would be located in an existing compost area off Middle Drive West buffered by dense vegetation adjacent to Park roads and use areas. This project would involve use of earthmoving equipment and could include use of impact tools for demolition and pile driving. Construction of the underground reservoir is estimated to take about 24 months and would include excavation of about 24,000 cubic yards of sand.

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[2] In indoor noise environments, the highest noise level that permits relaxed conversation with 100 percent intelligibility throughout the room is 45 dBA. Speech interference is considered to become intolerable when normal conversation is precluded at 3 feet, which occurs when background noise levels exceed 60 dBA. In outdoor noise environments, the highest noise level that permits normal conversation at 3 feet with 95 percent sentence intelligibility is 66 dBA (US Environmental Protection Agency, 1974, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety.)*

The noise impact of truck traffic along haul routes and access roads within the Park would vary with specific project activities and construction phases. The highest volumes of truck traffic are anticipated to occur during excavation and concrete placement phases. Proposed projects with high truck traffic volumes would include the excavation and construction for the reservoir and pump station and the relining of the lakes. Appendix E provides estimates of the general level of truck activity associated with construction of Park Master Plan Projects.[3]

The City has designated the primary truck access routes for the proposed Golden Gate Park Master Plan projects as:

- from the east side, Fell and Oak Streets provide access to and from Hwy. 101 to John F. Kennedy Drive.
- from the south side, 19th Avenue provides access to MLK Drive.
- from the north side, Park Presidio Bypass continues as State Route 1 to the Golden Gate Bridge. Other streets connecting to the Park include Stanyan and 25th Avenue via California Street.
- from the west side, Great Highway provides access to John F. Kennedy Drive.

The effects of potential truck noise intrusion would depend on the level of background noise already occurring at a particular receptor site. In quiet noise environments (Leq[4] averaging 50 dBA), one additional truck would be noticeable. However, in slightly noisier environments (Leq averaging 60 dBA), the threshold level is higher and it would take an additional ten trucks per hour to noticeably increase the noise exposure. In moderately noisy environments (Leq averaging 70 dBA), the noise increase would be perceptible with the addition of 100 trucks per hour. In quiet noise environments or during quieter times of the day, truck noise is mainly a single event disturbance because, although the hourly average noise associated with short single events is not very high, individual noise peaks of 80 to 85 dBA are common during a truck passage. In noisy environments or during less noise-sensitive hours, truck noise would be perceived as a part of the total noise environment rather than as an individual disturbance.

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[3] DKS Associates, Working Paper No. 1, *Transportation Impacts From Golden Gate Park Construction Projects,*October,1995.

[4] Leq represents energy-equivalent noise levels; dBA is a measure of sound in units of decibels (dB) on the A-weighted scale. The A-weighted decibel scale simulates the response of the human ear to various frequencies of sound.

Given the existing ambient noise levels along existing Park roads and local roads designated as truck access routes by the City and the temporary nature of truck noise, where existing noise levels are between 70-80 dBA, Ldn[5] noise impacts would not be significant.

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[5] Ldn, a day-night average noise level, represents a cumulative measure in decibels (dBA) of community noise during a 24-hour period. It applies weighting factors to account for people's lower tolerance to noise during the night (10 PM to 7 AM).

E. AIR QUALITY/CLIMATE/SHADOWS

The proposed Park Master Plan would not change existing climate conditions in the Park. Construction activities, construction equipment, construction truck traffic and from vehicle traffic on Park roads and local streets around the Park, and from stationary equipment (pumps) associated with proposed projects would affect air quality. Each of these is discussed below.

CONSTRUCTION-RELATED DUST EMISSIONS

Dust emissions would be associated with a variety of construction activities, such as excavation, demolition, pipeline or utility trenching, or the transport or storage of sand and soils, or other materials in the project area. These activities could result in a localized dust nuisance, including the respirable fraction known as Particulate Matter in the form of fugitive dust (PM_{10}).

Dust emission from construction activities would vary from day to day depending on a number of factors such as wind conditions, soil moisture, and the depth of the excavation or screening buffer around the project site. The U.S. Environmental Protection Agency (EPA) has published emissions factors for materials removal and subsequent replacement (i.e., excavation and backfilling) which indicate an average total suspended particulate (TSP) emissions level of 0.07 pound of TSP per ton of soils material during excavation and handling.[1] No PM_{10} emissions data are available. These factors represent uncontrolled conditions which do not account for standard control procedures required by air quality regulatory agencies. The above TSP factor represents an average value, with values as high as 0.44 pound per ton observed in some EPA dust emission programs.

The largest dust particles would be expected to settle out within the construction areas, but some quantities of dust would be carried beyond the construction site. The prevailing winds would generally carry dust emissions in a west-to-east direction in the Park, exposing receptors east of project sites to dust emissions. Dust particles are typically filtered efficiently by humans, although the smallest particles can enter deep lung tissue. These smallest particles have a low irritant response because they are chemically or biologically benign. There is a slightly increased health risk from breathing otherwise benign dust due to small amounts of active micro-organisms in soil, but the risk factor is low. Dust is also a nuisance as it settles out on parked cars, outdoor foliage and furniture.

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[1] U.S. Environmental Protection Agency, *AP-42, Compilation of Air Pollutant Emission Factors,*1985.

Because of the normal high winds in the western part of the Park and frequent background levels of PM_{10} that are high, there would be a high potential for a violation of the California 24-hour PM_{10} standard (but not the federal standard) at the reservoir site and the lakes project areas during construction. Use of a dust suppressant (a fine water spray mist trained on dirt piles during excavation, and onto haul trucks during loading and unloading) could reduce project-related PM_{10} emissions by 50 percent and reduce exceedances of the State standard.

CONSTRUCTION EQUIPMENT AND HAUL TRUCK EXHAUST EMISSIONS

Combustion emissions from construction equipment and vehicles, such as delivery trucks, haul trucks, backhoes, trenchers, air compressors, and generators, would be associated with the proposed Park Master Plan projects. Equipment exhaust contains both pulmonary irritants and hazardous compounds, which may affect sensitive receptors such as young children, senior citizens, or those susceptible to respiratory disease.

Assuming that a backhoe is representative of the level of emissions associated with operation of various types of construction equipment anticipated to be used for the proposed construction activities, a unit value of emissions for a backhoe was scaled according to EPA emission factors for “Gasoline and Diesel Industrial Engines”.[2] Table 35 shows that the estimated exhaust emissions at a distance of 60 feet from the backhoe would be adequate separation from a potential receptor to provide sufficient mixing to prevent violation of clean air standards. Larger equipment would have high exhaust stacks and higher exit velocities which would further increase the buoyancy and transport distance of the emissions. Therefore, single pieces of heavy equipment that would be used in Golden Gate Park would not violate ambient air quality standards.

Delivery and haul trucks would generate exhaust emissions while idling at the project site as well as while traveling along haul routes. On a local level, receptors located along haul routes would be subject to increased CO exposure equivalent to 60 automobiles passing per hour or one car per minute, assuming a peak daily volume of 160 trucks over an 8-hour period, or 20 trucks per hour. CO emissions from one truck is equivalent to emissions from three automobiles.[3] CO exposure increases on the magnitude of one additional car per minute would not noticeably

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[2] US Environmental Protection Agency, AP-42, *Compilation of Air Pollutant Emission Factors, Section 3.3,* 1985

[3] DKS Associates, Qorking Paper No. 1: Transportation Impacts from Golden Gate Park Construction Projects, October 17, 1995.

TABLE 35: EQUIPMENT EXHAUST EMISSIONS IMPACT ON LOCAL AIR QUALITY

	Estimated near-field Exhaust Emissions From Backhoe		
Pollutant	One-Hour Standard (ug/m^3)	One-Hour Impact /a/ (ug/m^3)	% of Standard
Carbon Monoxide	23,000	906	3.9%
Nitrogen Oxides (No_x)/b/	470	198	42.1%
Sulfur Dioxide	655	165	25.2%
Inhalable Particulates (PM_{10})	150	12	8.3%

ug/m3: micrograms per cubic meter

/a/ Above non-project background level. Assumes that about 80 brake-horsepowe r-hours of backhoe operation.

/b/ Assuming 10% of "fresh" Nox is Nox, 90% is NO.

NOTE: Ambient air quality impact is calculated based on the USEPA SCREEN2 Dispersion Model. Levels are measured at 609 feet from the equipment.

SOURCE: Geier & Geier Consulting, Inc., 1995

increase CO hourly exposure at any of the possible receptors along the haul routes leading to the Park.

TRAFFIC-RELATED EMISSIONS

The traffic analysis (Section IV.C) does not identify substantial increases in localized traffic on roadways within the Park or at intersections analyzed as part of the proposed circulation element of the Park Master Plan. Traffic-related emissions from the proposed Park Master Plan would not change substantially from existing and future conditions without the project.

SHADOWS

Section 295 of the *Planning Code* prohibits the issuance of building permits for structures that would shade property under the jurisdiction of, or designated to be acquired by, the Recreation and Park Commission unless the Planning Commission, in consultation with the Recreation and Park Commission, determines that such shade would have an insignificant adverse impact on the use of such property. Section 295 applies only to structures which exceed a height of 40 feet.

None of the proposed projects in the Park Master Plan would exceed the 40 foot height criteria. Building expansions/additions proposed under the Building and Monuments Element (See Table 28, page 196-7) would be within the shadow of the existing roofline (Golf Clubhouse, Tennis Clubhouse) or would be single story structures (Tea Garden restroom, pumphouse entry, equestrian residence, Music Concourse maintenance building). The proposed West End visitor serving facility would be located on the site of the planned demolition of the Millwright's House and would not have substantial new shadow greater than the existing building.

F. UTILITIES AND PUBLIC SERVICES

This section addresses potential impacts of Park Master Plan projects on existing utilities and services in Golden Gate Park. Effects on, demand for, and provision of the following services are addressed:

- power, lighting and communications;
- solid waste generation and disposal;
- police and fire protection;
- schools, recreation and other public facilities.

Potential impacts of Park Master Plan projects on Park water, sewer and drainage systems are addressed in Section I. WATER, SEWER AND DRAINAGE SYSTEMS, starting on page 252.

POWER, LIGHTING AND COMMUNICATIONS SYSTEMS

Increased Demand for Services

Under the Park Master Plan, the Park would continue using the PG&E power supplies and Pacific Bell telephone services. Several proposed Park Master Plan projects (pump stations for lakes, wells, reservoir) would result in moderate increases in demand for power, as described in Section J. ENERGY/NATURAL RESOURCES, starting on p. 260. Additional requirements for power and telephone services resulting from Park Master Plan projects would not be substantial and therefore are not identified as significant.

Infrastructure Projects

Park Master Plan projects include comprehensive replacement and repair of the electrical and lighting systems. Power distribution systems would be upgraded to meet the City and County of San Francisco Building Code and Standard Plans and Specifications, the National Electric Code, and local utility requirements. Lighting system upgrades would include both replacement of deteriorated or substandard equipment, and expansion of night lighting systems to improve safety and convenience for Park users. These actions are funded under the 1992 Golden Gate Park Infrastructure Bond program. When proposed as individual projects utility replacements would usually be Categorically Exempt from environmental review. They are considered in this EIR for potential cumulative impacts and for informational purposes.

New night lighting is proposed for the tennis courts, Pioneer Log Cabin and Equestrian Center. Visual effects of proposed new night lighting are discussed under Section A. LAND USE AND VISUAL QUALITY, starting on p. 191, and under Section J. ENERGY / NATURAL RESOURCES, starting on p. 260.

SOLID WASTE GENERATION AND DISPOSAL

Under the Park Master Plan, Golden Gate Park would continue to dispose of its solid wastes in the same manner as at present. As described in Section B. POPULATION, starting on p. 199, the Park Master Plan projects would not be expected to result in measurable changes in Park visitor levels or the population of adjoining neighborhoods. When new log chipping/grinding equipment is purchased, as proposed under the Maintenance and Operations Element (see PROJECT DESCRIPTION, page .74), the volume of wood waste (500 logs) would be reduced, freeing up log storage area space for Park recreational use. In the long term, Master Plan projects would not be expected to measurably affect the amount or type of solid waste generated on-site or brought in by Park users.

POLICE AND FIRE PROTECTION

Demand for Services

Under the Park Master Plan, Golden Gate Park would continue to receive police and fire protection services from the City. As described in Section B. POPULATION, starting on p. 199, Park Master Plan projects would not be expected to result in measurable changes in Park visitor levels or the population of adjoining neighborhoods. Demand for fire and police protection services would not be expected to substantially change as a result of Park Master Plan projects.

Park Landscape Projects

Park Master Plan projects would result in physical changes that could potentially improve police and fire protection service levels and general Park safety. Proposed landscaping (trimming brush and understory vegetation) and lighting improvements, particularly in the Park's west end, would improve visibility of Park trails and could enhance the effectiveness of Park patrols while reducing available cover for camping and other illegal activities. Proposed vegetation to improve habitat and screening around the Park would be implemented in a manner that would also address improved visibility. The Park perimeter screening would be selectively restored to improve visual character of the Park edge.

Park Infrastructure Projects

Proposed improvements to the Park's domestic water system would be expected to improve the capacity and reliability of fire hydrants in and near the Park. All of the hydrants that are currently tied to SFWD supplies, and most of the Stow Lake-fed hydrants, would be left as they are. Strawberry Hill reservoir would be removed from the Park irrigation system, and hydrants presently fed from that reservoir would be switched over to the SFWD supply. Four new hydrants fed by SFWD supplies would be installed to protect the Angler's Lodge, the Pioneer Log Cabin, the east end of the Conservatory and the Tennis Clubhouse. Additional hydrants connected to the proposed recycled water/well water Park irrigation are also proposed.

SCHOOLS, RECREATION AND OTHER PUBLIC FACILITIES

In general, Park Master Plan projects would be expected to enhance the Park's existing educational and recreational facilities and services by adding interpretive signs and informational kiosks and improving facilities (Arboretum, Beach Chalet visitor area, County Fair Building) used for educational purposes. Some facilities and services would be temporarily disrupted during construction activities, as noted below. The Sharon Arts Program would be relocated to a new facility from the Sharon Building if an appropriate site can be found.

CONSTRUCTION IMPACTS

At some Park locations, existing recreational areas and activities would be temporarily disrupted during construction of proposed Park Master Plan projects. In general, affected areas (e.g., lakes, playing fields, paths, buildings under renovation, etc.) would be closed to the public during their respective construction periods. Master Plan project construction would be phased over a ten-year period and projects would be coordinated by park zone to minimize impacts to the Park and Park visitors (see Appendix B).

Utility replacement activities would temporarily disrupt the following roadways: Kennedy Drive, Middle Drive West, Chain of Lakes Drive, Middle Drive East, Conservatory Drive, Kezar Drive, Bowling Green Drive, Stow Lake Drive, King Drive, Tea Garden Drive, 8th Avenue, and 47th Avenue. The scheduling of infrastructure improvements would be phased over a ten-year period to minimize impacts to specific roadways and areas of the Park and to Park visitors.

Demolition of buildings and structures (Millwright's House), pavement removal, construction and other activities associated with proposed Master Plan projects would be expected to result in temporary increases in solid waste volumes. Some of the material (clean dirt from excavation) would be reused on site for fill. Construction debris materials (concrete forms, demolished building materials, old pipes, etc.) would be removed from the Park by construction contractors for landfill disposal.

Dredging of lake sediments would include some accumulated litter and other objects that have fallen, sunk or been dumped into the lakes over the years. Such objects would have to be separated from the sediments and would be hauled off-site and disposed of in landfills. Similarly, roadway projects involving pavement removal, demolition of the Millwright's House and rehabilitation of buildings would generate waste materials that would be removed from the Park by contractors and disposed of in landfills.

Hazardous waste materials (asbestos, lead based print) resulting from building restoration or other Park Master Plan projects would be disposed of according to procedures described in Section K. HAZARDS.

CUMULATIVE IMPACTS

Other than the potential construction related impacts described above, the cumulative impacts expected to result from implementation of the proposed Park Master Plan actions/projects would not substantially effect power, lighting or communications beyond slight incremental increases in demand; would not substantially increase the volume of solid waste generation in the Park; and would not change existing fire or police protection services.

G. BIOLOGY AND WETLANDS

Both policy and specific projects in the Golden Gate Park Master Plan are considered for their potential to affect biological resources. For policy elements, the overall effect of the long-term implementation of policies on biological resources is assessed. For specific projects, the location of the project was considered along with the potential changes to or effects on biological resources to determine the project's potential for impacts. Sensitivity of biological resources to disturbance was considered for both policy and specific projects.

Potential impacts on plant and wildlife resources are evaluated in this document with special attention to species which are officially identified as threatened or endangered. Specific threshold criteria for identifying substantial changes are used to assess potential impacts when available data exist to support those criteria. Criteria for assessing potential impacts are described for construction-related and other temporary disturbances as well as for proposed permanent changes. However, biological resources of Golden Gate Park are accustomed to routine disturbance from intense recreational use and ongoing Park maintenance activities, and are therefore assumed to be less sensitive to temporary disturbances such as noise, dust, and vehicle traffic than biological resources that occur in more rural or pristine environments. Therefore, temporary disturbance would be considered significant only if the disturbance represented a substantial increase in existing disturbance conditions, or prolonged noise or dust levels.

IMPACTS TO HABITATS, WOODLANDS, LAKES

Oak Woodlands

Indigenous oak habitat would benefit from the implementation of portions of the on-going and proposed reforestation plan pertaining to indigenous oak woodlands. Specifically, the areas would be managed to maintain a multi-age, structurally diverse forest (i.e., a forest with variations in tree and shrub height, density, and age). As appropriate for visitor and fire safety, snags and brush piles (forest litter) would be retained as wildlife habitat features in these areas.

Interpretive programs focused on the natural areas would be expanded. Native plant species, including native oaks and winter-bearing nectar and fruit-producing trees would be maintained where existing, and planted where appropriate to enhance the existing forest habitats. A list of native species appropriate for the San Francisco area that could be used in indigenous oak woodlands is included as Appendix C.

Artificial Lakes, Waterways, Wetlands

Temporary loss or degradation of artificial lakes and waterways could occur as a result of implementation of two projects proposed under the Park landscape element: the Lakes rehabilitation project and the reconstruction of Rainbow Falls. Under these proposed projects, the artificial water bodies would be temporarily drained for two to six months, sediments and vegetation removed, the structural features repaired, the lakes would be refilled and the sites revegetated. Temporary substantial habitat degradation or loss during construction could occur. Some of these artificial lakes and water bodies support sensitive wildlife species (southwestern pond turtles, migratory waterfowl) and temporary loss or degradation to habitat would be significant. In the long term the lakes rehabilitation project would ultimately improve overall water quality in the lakes, and is therefore considered a long-term beneficial effect to dependent wildlife species, including the Southwestern pond turtle and migratory waterfowl.

The lakes reconstruction project would affect some wetland habitat that may be considered jurisdictional by the Corps of Engineers pursuant to Section 404 of the Clean Water Act. To ensure that the project does not adversely effect jurisdictional areas, the Corps will be contacted prior to final design to determine if impacts to jurisdictional areas would result from the lakes reconstruction project. If jurisdictional areas are present, a wetland delineation, Section 404 permit and mitigation plan will be prepared and submitted to the Corps to ensure project compliance with the federal Clean Water Act. The Corps would consult with the U.S. Fish and Wildlife Service to assess impacts to federally listed species. Formal Endangered Species consultation may be required as part of the Section 404 permit review and future biological studies may be necessary to support a Biological Opinion by USFWS.

IMPACTS TO PLANT SPECIES

The Golden Gate Park Master Plan could have the potential to affect common and invasive plant species. Potential impacts are described below.

Common and Invasive Plant Species

Proposed actions that could affect common and invasive plant species include clearing of perimeter vegetation around the site for the proposed reservoir located off Middle Drive West, and clearing of vegetation for Park entry improvements. Because these common and invasive plant species are relatively widespread in Golden Gate Park and elsewhere, and are not regulated by state or federal laws or policies, loss of common and invasive plant species is considered less than significant. In addition, the proposed site for the underground reservoir is mostly clear of vegetation and is currently used for Park maintenance, wood chipping and compost/soil storage. No mitigation is required.

Sensitive Plant Species

Implementation of the Golden Gate Park Master Plan would not affect sensitive plant species. No sensitive plant species have been recorded in the Natural Diversity Database or in the 1996 spring and summer surveys by May Consulting. Although small patches of suitable habitat for *San Francisco campion*, *San Francisco gumplant*, and *San Francisco lessingia* do occur in Golden Gate Park, the number and extent of past disturbances in the general area of the suitable habitat, along with the highly fragmented nature of remnant habitat patches, suggest that occurrence of sensitive species is unlikely and, therefore, potential for impacts on sensitive plants is considered extremely low.

Though no significant impacts are identified for sensitive plant species, effects on sensitive species would be avoided to the extent practicable during final design of specific Park Master Plan projects. For construction projects, a buffer of approximately 50 feet would be established between the plant population and active construction areas. Plant populations would be fenced and protected with post and cable or temporary mesh fencing, and construction activities and personnel would be prohibited from fenced areas.

IMPACTS TO WILDLIFE SPECIES

Implementation of the Golden Gate Park Master Plan would have the potential to affect both common and sensitive wildlife species. Specific programs under the Proposed Park Master Plan that would have beneficial impacts on wildlife include:

- implementation of the wildlife habitat improvement program,
- implementation of the reforestation plan (e.g., wildlife habitat improvement and indigenous oak woodland portions of this plan),

Specific actions in the Park Master plan that would result in potential adverse impacts to wildlife species (either temporary or permanent) include:

- implementation of the lakes rehabilitation project (as proposed under the Park landscape element),
- reconstruction of Rainbow Falls,
- implementation of the Strybing Arboretum Special Area Plan (last recorded location of a red-legged frog, landscape modifications),

Beneficial effects to common and sensitive wildlife species are expected to result from implementation of the proposed wildlife improvement plan. Under this plan, areas identified as "Special Wildlife Areas" and "Waterfowl Areas" (Figure 28 page 133) would be managed for wildlife habitat values.

Common Wildlife Impacts

Management for wildlife habitat values is expected to benefit common mammal species, songbirds, Monarch butterflies, and sensitive raptor species by increasing food supplies (especially during critical winter months) and by providing suitable cover and nesting microhabitats. Specifically, the areas would be managed to maintain a multi-age, structurally diverse forest. As appropriate for visitor and fire safety, snags and brush piles would be retained in these areas. Park staff would cooperate with SPCA and the Office of Animal Care and Control to use humane procedures to remove and control free-roaming domestic dogs, feral cats, feral ducks, or geese when their presence conflicts with natural wildlife. Signs would be posted informing the public why Park animals should not be fed, and interpretive programs focused on the natural areas will be expanded. Native plant species, including native oaks and winter-bearing nectar and fruit-producing trees, would be maintained where existing, and, as appropriate, planted to enhance existing habitats. A list of native species appropriate for the San Francisco area that could be used in the reforestation and wildlife improvement plans is included as Appendix C. This species list was developed in consultation with the local chapter of the California Native Plant Society.

Sensitive Wildlife Impacts

Southwestern Pond Turtles Impacts to southwestern pond turtles and turtle habitat could occur as a result of the proposed Lakes rehabilitation project and the reconstruction of Rainbow Falls. Turtles are known to inhabit the following water bodies: Rainbow Falls Pond and Lily Pond, and Lloyd, Metson, Mallard, Middle, and Stow Lakes and their interconnecting waterways (Figure III-9). Suitable turtle habitat at North Lake would also be affected, although the species was not found at this lake during the 1995 survey[1].

Under these proposed Park projects, the artificial water bodies would be temporarily drained (two to six months), sediments and vegetation removed, lake bottoms would be relined, the lakes refilled and the lake edges would be revegetated. Impacts that could result from the proposed improvements include mortality of individual turtles, temporary habitat loss during construction, and potential for permanent alteration of suitable turtle habitat (loss of protective vegetation cover, loss of basking sites).

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[1] Environmental Science Associates, Red-legged Frog and Pond Turtle Summer Survey Results for the Golden Gate Park Lake Relining Project, August 15, 1995.

Mortality of individual Southwestern Pond turtles is considered significant because the species is considered rare locally and declining regionally, and is a candidate for federal listing.

Temporary loss of habitat during lakes reconstruction and Rainbow Falls reconstruction is considered less than significant because impacts are not expected to result in “substantial diminishment” of turtle habitat in the Park at any given time over the life of the Park Master Plan implementation.

Potential for permanent alteration of turtle habitat in the rehabilitated lakes is considered significant. Permanent alterations that could adversely affect the species include diminishment of protective vegetative cover and basking habitats for turtles. Diminishment of these lake features could result in increased predation and/or loss of individual turtles. Mitigation measures are available to reduce or avoid the impact.

California Red-Legged Frogs California red-legged frogs are found to inhabit one pond within the Strybing Arboretum complex (Figure 28). Loss of individual California red-legged frogs could occur as a result of improvements proposed under the Strybing Arboretum Special Area Plan. Although improvements are not proposed in the pond itself, frogs are known to migrate up to 0.25 mile from aquatic habitats to estivate (rest in a cool moist, out-of-water location). In the Arboretum, California red-legged frogs have previously been observed by gardeners under flower pots.[2]

Because the Strybing Arboretum is the location of the last known red-legged frog occurrence in Golden Gate Park, and because the red-legged frog is listed as threatened, loss of individual frogs would be considered a substantial reduction of the remaining population and, therefore, a significant impact. The following projects proposed under the Special Areas Plan for the Strybing Arboretum are proposed in upland areas within 0.25 mile of the occupied pond:

- construction of a new rock garden and water feature.

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[2] Ed Ely, telephone conversation with May Consulting, November 28, 1995; gardener found red-legged frog under flower pot in December 1990.

- construction of a new path and promenade near the main gate.
- renovation of the existing well and reservoir as a water conservation interpretive exhibit.

If construction of these features occurs during migration periods for the species (November to mid-August), impacts on migrating frogs in upland areas could occur.

Waterfowl Habitat Implementation of the Lakes rehabilitation project could result in changes to important waterfowl habitat. Mallard, Elk Glen, Stow, Spreckels, Metson, South, Middle, and North Lakes are reported to be important to waterfowl [3]. Changes to waterfowl habitat that could result from implementation of the Lakes rehabilitation program include: temporary loss of food sources (e.g., insect or emergent aquatic plant populations) for wintering waterfowl and loss of emergent aquatic or riparian habitats.

To minimize potential for degradation of waterfowl habitat (including temporary loss of food sources for wintering waterfowl and degradation of waterfowl habitat), the following measures for Mallard, Elk Glen, Stow, Spreckels, Metson, South, Middle, and North Lakes are included as part of the project.

- Schedule construction to no more than two of these lakes at a time, or restrict construction activities in designated lakes during winter migration periods (October 1 to April 15) to ensure availability of sufficient habitat for wintering waterfowl during migration periods.
- Minimize removal of emergent aquatic vegetation around perimeter of lakes (where possible) and specify types and amounts of replacement emergent aquatic vegetation to be replanted in wintering waterfowl habitats. A list of emergent aquatic species considered suitable for wildlife habitat areas is included in Appendix C.
- Require retention of upland shrubs, such as willows, in areas adjacent to lake edges. Shrubs to be retained will be protected during construction by installing a temporary construction barrier, such as orange mesh fencing. If shrubs cannot be retained, replacement plantings of native willows (*Salix* spp.) or similar native shrubs is recommended at a ratio of one replacement shrub for each shrub removed. A list of suitable lakeside shrubs is included in Appendix C.
- If sediment is to be removed from designated lakes, and as appropriate to ensure water quality, require contractor to stockpile the top 3 inches of sediment. After the new restricting layer has been installed into the rehabilitated lake, the stockpiled sediment should be used to inoculate areas designated for revegation with emergent aquatic vegetation seeds. Inoculation is intended to help reintroduce aquatic insect and plant species found in the original lake habitat, thereby expediting recovery of suitable habitat conditions for wintering waterfowl.

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[3] Sycamore Associates, *Golden Gate Park Lakes Biological Resource Assessment Phase I,* 1994.

- Incorporate minimum water quality and turbidity standards for wintering waterfowl habitats into bid specifications.

A qualified biologist would be retained to monitor lakes after construction to help ensure recovery of suitable habitat conditions for wintering waterfowl. Monitoring will be conducted annually for a period of 3 years, and will include an assessment of waterfowl use, as well as overall habitat conditions (i.e., presence or absence of emergent aquatic vegetation and aquatic insect species, assessment of overall water quality). If necessary, the biologist will recommend remedial measures, in consultation with regulatory agencies, to help ensure rapid recovery of wintering waterfowl habitat.

Nesting Raptors Several raptor species are known to nest in Golden Gate Park, including great-horned owl, red-tailed hawk, barn owl, and red-shouldered hawk. Raptors nest throughout the Park and can nest in different locations during different years; therefore, it is not possible to determine the exact location of future nest sites and to predict possible conflicts with scheduled construction activities. Unlike raptor nests in rural areas, raptors that nest in Golden Gate Park are accustomed to a relatively high level of disturbance associated with recreational use of the Park and Park maintenance activities. Therefore, only construction activities conducted during the breeding season (i.e., February to April for great-horned owl, and March to June for hawks) in the immediate vicinity of active raptor nests (i.e., within 0.25 mile of a nest) that result in substantial and prolonged increases in noise, dust, human, or equipment activity, or that remove nest trees are considered to have potential to disrupt raptor breeding or nesting activities. Activities proposed under the draft Golden Gate Park Master Plan that have potential to harm or harass nesting raptors include:

- removal of trees under the reforestation program,
- demolition of the Millwright's House, (temporary disturbance over 4-6 weeks)
- construction of the underground reservoir and pumping facilities. (12 to 24 month construction)

These activities are considered to have potential to harm or harass nesting raptors because of their location near historical nest sites, expected prolonged construction or demolition schedule, or potential for substantial increases in disturbance (e.g., potential for high impact noise, use of large earthmoving equipment).

For construction activities of short duration that can be accomplished during any time of the year, construction would be restricted to the non-breeding season (July to January) . For construction activities that cannot be accomplished during the non-breeding season, a qualified biologist would be retained to identify active raptor nests (if any) within 0.25 mile of construction sites. If active nests are located within 0.25 mile of construction sites, suitable methods to reduce or minimize impacts to nesting raptors in consultation with Department of Fish and Game would be determined. Suitable methods to reduce or minimize impacts may include the following:

- Establish buffer zones around active nests based on site-specific conditions, and restricting certain construction activities within the buffer areas.
- Require contractor to minimize disturbance (e.g., restrict use of high impact tools (jackhammers), muffle noisy equipment, install sound barriers to direct noise away from raptor nests, require dust abatement, designate parking and equipment storage areas away from nest sites) within 0.25 mile of active nests during the breeding season (February to June). Requirements should be incorporated into bid specifications.
- Prohibit removal of trees with active raptor nests until after adult raptors have abandoned the nest site and young raptors have fledged, as determined by the biologist.

H. GEOLOGY AND TOPOGRAPHY

Potential impacts to geology and topography address the exposure of people or structures to major geologic hazards (slides, subsidence, erosion and liquefaction) and substantial changes to topography or unique geologic or physical features of the site from implementation of the proposed Park Master Plan projects. None of the proposed projects in the Park Master Plan would change the unique geologic or physical features of Golden Gate Park. Strawberry Hill, the highest point in the Park at an elevation of 410 feet, would not change. Reconstruction of Rainbow Falls would preserve the unique qualities of this physical feature.

None of the Park Landscape Element projects (including the Lakes reconstruction) proposed in the Park Master Plan would significantly change geology or topography. Circulation Element proposed projects would not affect geologic features or topography. None of the proposed projects in the Recreation Element would substantially change topographic features or geologic features, nor would any of the renovation/restoration/additions to Buildings and Monuments or Visitor Facilities impact geology or topography.

SEISMIC HAZARDS

Potential impacts related to the geophysical conditions (soil stability, liquefaction potential, soil lurching) in the Park would result from moderate to severe earthquake shaking and could cause non-structural damage to buildings and facilities in the Park. A major earthquake on the San Andreas, Seal Cove-San Gregorio, Hayward, or Calaveras faults could potentially cause strong to severe ground shaking at the Park, while earthquakes on either the Rodgers Creek or the Concord faults could produce moderate to strong ground shaking. The 1906 earthquake caused severe damage to buildings and roads within the Park, and severely damaged the two-story concrete observatory on the top of Strawberry Hill. The Loma Prieta earthquake caused damage to several buildings (Sharon Building, de Young Museum, and the Conservatory) in the Park.

Future seismic events with strong ground shaking from earthquakes in the region could create hazards in the Park. Ground shaking intensities would vary depending on the magnitude of the earthquake, the distance from the fault, and the type of materials under specific areas of the Park. The effect of strong shaking on structures depends primarily on the design and structural conditions of the Park buildings and monuments where Park visitors and employees could be exposed to hazards. The number of persons potentially affected would not change under the Park Master Plan because Park visitor numbers would not change substantially. Injuries to Park visitors during an earthquake are most likely to result from building damage and the majority of visitors would not be in or around buildings. Some buildings would be seismically upgraded (McLaren Lodge, Beach Chalet, carousel, Equestrian Center, Conservatory, County Fair Building), reducing the potential hazard in the event of a major earthquake.

Liquefaction is the sudden temporary loss of shear strength in saturated, loose to medium dense, relatively clay-free sands and silts. It occurs when rapid compaction during earthquake ground shaking causes water pressure to increase to a point that it equals the confining pressure of the soil. The potential for liquefaction depends on the duration and intensity of earthquake shaking, particle size distribution of the soil, density of the soil, and elevation of the groundwater. Golden Gate Park is underlain by dune sand and the Colma Formation, as described in ENVIRONMENTAL SETTING, III.H. These sands, if saturated, may be liquefiable or could cause lurching if subjected to moderate to severe ground shaking. Effective depths of liquefaction are generally considered to be shallower than 30 to 40 feet. Based on the approximate depths to groundwater in the Park, the area west of North Lake would be most subject to liquefaction risk. During a wet winter, the groundwater table may be higher and liquefaction or lurching effects could result during an earthquake. The Beach Chalet, two windmills, Millwright's House and Golf Clubhouse are in the western area of the Park and would be at risk to liquefaction and lurching. The Beach Chalet has been seismically upgraded and the Millwright's House is to be demolished under the Park Master Plan.

The western end of the Park is also at most risk of Tsunami inundation, particularly if a Tsunami were to occur at high tide. The area of impact could reach approximately 20 feet higher than high tide.[1]

EROSION AND SOIL STABILITY

Golden Gate Park's sandy soil is prone to erosion from heavy foot, equestrian, and bicycle traffic along unpaved trails, portions of Strawberry Hill, and where water has eroded slopes. Slopes in the Park are generally not very steep, are well vegetated, and are not prone to slope instability such as landslides and raveling. The Park Master Plan has identified 33 erosion areas that need to be stabilized. Stabilization of erosion-prone areas would reduce erosion potential.

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[1] Geo Resource Consultants, *Geology, Groundwater, and Recycled Water Background Report,* March, 1993.

Projects proposed as part of the Park Master Plan that could result in erosion impacts, particularly during excavation activities, include trenching for irrigation and utility system repairs and improvements, the lakes reconstruction projects, and the underground reservoir and pump station. Excavation of the estimated 24,000 cubic yards of sand for the reservoir would have erosion potential. Utility and pipeline trenching would be confined primarily to existing roads and pathways and would have limited erosion potential.

The lakes rehabilitation projects are scheduled over a period of ten years. The total volume of undrained spoils (sediment and clay removed from existing lake bottoms) is estimated to be about 50,000 cu yd. Drained, the volume is estimated at 18,000 cu yd. Of the total spoils volume, about 15,000 cu. yd. is lake bottom clay. Clay materials used to line lakes were mostly crusted shales quarried from nearby rock outcrops (Lily Pond), with a thickness of 3 to 7 inches. Sediment thickness in lakes averaged 4 to 16 inches.[2] The total volume of drained sediments and clay would be about 32,400 cu yd. The moisture content of the sediments varies between 20 percent and 90 percent. A volume reduction of about 63 percent is expected upon drainage of sediments. The sediments have been tested and do not exceed the thresholds for hazardous waste disposal. The laboratory analysis revealed some high copper sulphate levels in sediments in Stow and Spreckels Lakes, and high salinity levels for Spreckels Lake sediments. (See also, Section K. HAZARDS).

Various alternatives have been identified for handling and disposal of dredge spoils, including draining and mixing with sand to use as a soil amendment in the Park. Because of the high moisture content, the sediment could be slurried to another area in the Park to dry and mix with sand. Some sediments will be returned to lake bottoms to maintain existing habitat conditions for plants and aquatic species. The excess spoils could also be drained and hauled to a clean-fill or disposal site outside the Park.

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[2] Lakes Rehabilitation Water Quality, Sediments and Leakage, Ace Pacific Co., October 1994.

I. WATER, SEWER AND STORMWATER DRAINAGE SYSTEMS

This section addresses potential impacts of Park Master Plan projects on Park water use, quality, supply and distribution systems. Potential environmental impacts of proposed Park Master Plan sewer and drainage projects are addressed principally in relation to cumulative effects on groundwater (recharge rates and quality), and City sewer/stormwater system capacity.

SEWER AND DRAINAGE SYSTEMS

Comprehensive replacement and repair of the existing sewer and storm drainage system proposed as part of the Park Master Plan was funded under the 1992 Golden Gate Park Infrastructure Bond Program. Many of the individual actions by themselves would be categorically exempt from environmental review. Potential cumulative effects of these actions, combined with other planned or reasonably foreseeable projects in and near Golden Gate Park, are discussed starting on p. 255.

PARK WATER SUPPLY SYSTEM MASTER PLAN

According to the Park Master Plan, implementation of the proposed Water Supply System Master Plan would correct the two major problems with the Park's existing internal water system: lack of storage capacity to serve some areas of the Park, and low water pressure in some areas of the Park because of dependence on gravity flow. Park water storage capacity would more than double as a result of the projects, and the central pumping station would allow for establishment of two water pressure zones (east and west) and flexibility in delivering both well water and recycled water to all parts of the Park.

REPLACEMENT WELLS, GROUNDWATER RESERVOIR, AND PUMP STATION

Total Park well production capability would be increased by approximately 1,550 gpm or 41 % as a result of the proposed well replacement and rehabilitation projects. Once the replacement wells are producing reliably, the existing wells would be decommissioned, or placed on standby for emergency use. The City Public Utility Commission would assume responsibility for the Park wells and would monitor and regulate extraction of groundwater in accordance with the City's Groundwater Master Plan. Monitoring would include water quality testing and monitoring for salt water intrusion to verify previous modeling data completed for the Groundwater Master Plan and to establish pumping rates for wells in the Park.

WATER SUPPLY SYSTEM MASTER PLAN IMPACTS ON PARK WATER USE

Projected Park water sources under the proposed Park Master Plan is shown in Table 36.

Expected long-range effects on Park water use of implementing the proposed Water Supply System Master Plan include:

- Elimination of the Park's use of municipal potable water for irrigation (from about 300,000 gpd in 1994);
- Reduction in use of pumped groundwater for Park irrigation by approximately 725,000 gpd, to about 17% of the 1994 use level, through substitution of well water with about 700,000 gpd of recycled water;
- Reduction in use of pumped groundwater for lake replenishment by about 60,000 gpd, due to rehabilitation of lake liners and edges;
- Reduction in overall Park water use relative to 1994 of about 22% (385,000 gpd) through replacement of deteriorated, leaking pipes and valves, installation of modern irrigation management and control systems that help minimize over-watering and allow for more night irrigating, and improved control of leakage from lakes.

Water use impacts would not be considered individually significant. Potential cumulative effects are discussed below.

LAKE REHABILITATION PROJECTS

The proposed Park Master Plan lake rehabilitation projects would be intended to manage (reduce but not eliminate) leakage, and help achieve a balanced and sustainable aquatic ecosystem in Park lakes. The lakes are not proposed to receive any recycled wastewater, but would continue to be supplied by Park well water to maintain reduced nutrient loads. Water volumes in lakes would increase by about 10 to 15 percent due to lake deepening and sediment removal projects. However, due to improvements to liners and lake edges, leakage would be reduced and the rate of well water replenishment to all lakes combined would decrease by about 60,000 gpm (about 11 percent). Each lake would receive surplus well water that would circulate through the lake and would flow through an overflow outlet to a subsurface drainage system designed to recharge the aquifer.

LAKE REHABILITATION PROJECT IMPACTS ON LAKE WATER QUALITY

Lake water quality would be expected to improve after completion of proposed lake reconstruction and utility replacement projects. The proposed measures would improve the circulation and

TABLE 36: Existing 1994, Interim 1996-2005 and Long-Range Water Sources and Use Estimates for Golden Gate Park

Park Water Source and Use	Existing System (1994)		Interim System (1996 - 2005)		Replaced System (After 2005)	
	Gallons Per Day	Acre-Feet Per Year	Gallons Per Day	Acre-Feet Per Year	Gallons Per Day	Acre-Feet Per Year
Groundwater for Irrigation	875,000		1,060,000		150,000	
Groundwater for Lakes Replenishment	560,000		500,000		500,000	
Total Groundwater	1,435,000	1,057	1,560,000	1,149	650,000	479
Potable Water for Irrigation	300,000		0		0	
Potable Water for Domestic Uses and Fire Fighting	35,000		35,000		35,000	
Total Potable Water	335,000	247	35,000	26	35,000	26
Total Reclaimed Water for Irrigation	0	0	0	0	700,000	663
System Total (Ground, Potable and Reclaimed Water)	1,770,000	1,304	1,595,000	1175	1,385,000	1,168

Source: Gordon King, City and County of San Francisco Department of Public Works, Bureau of Engineering, Project Management Division, Memo Dated January 16, 1996.

exchange of water in all parts of the lakes. Growth of invasive aquatic vegetation (tules) would be reduced by removal of sediments, lake deepening, improved aeration, and increased rates of water exchange. Stormwater runoff and erosion into the lakes would be reduced. The elimination of storm drainage outlets into the lakes would eliminate concentrated stormwater runoff discharge contaminated with surface debris, gardening residue, oil and grease and sediments from entering the lakes. This would improve water quality in the lakes (also used for Park irrigation and groundwater recharge).

OTHER MASTER PLAN PROJECTS

Rainbow Falls Reconstruction and Site Specific Irrigation Projects

Reconstruction of Rainbow Falls would not be expected to measurably affect water use or water quality in the Park. Proposed site-specific irrigation projects (Rhododendron Dell Rehabilitation and Irrigation, Golf Course Irrigation, and Irrigation of New Soccer Fields proposed for the former Richmond-Sunset Wastewater Treatment Plant site) would not be expected to measurably affect

Park water use or quality, except as part of the broader Water Supply Master Plan projects discussed above.

Effects of Master Plan Projects on Domestic Water Uses in the Park

A Domestic Water Master Plan was prepared by the City of San Francisco Department of Public Works in 1994. The plan identifies elements of the Park's domestic water distribution system that need to be upgraded or replaced, isolates the domestic water requirements of the Park from irrigation requirements, and addresses the need for adequate water flow to the Park fire hydrants. Major objectives of the plan are to separate irrigation lines from domestic water supplies, upgrade potable water lines to Park buildings, and change over fire hydrants currently fed from Strawberry Hill to the City water supply.[1] These projects would not be expected to measurably affect potable water use in the Park, but would improve safety and reliability of the domestic water supply systems. Impacts would not be considered significant.

Proposed Sewer and Drainage Project Impacts on Groundwater Quality

Groundwater recharge and pollutants from stormwater could be reduced due to proposed new Park drainage facilities, improving water quality conditions affecting the aquifer. Repair and replacement of existing leaking sewer pipelines would reduce pollutants filtering to groundwater.

CONSTRUCTION IMPACTS

Water Supply System Master Plan Project Construction Impacts

Installation of sewer, drainage, domestic water and irrigation pipelines, and related pumps, wells and other equipment, would temporarily disrupt the existing water and sewer systems. Much of the construction would take place within existing roadways; impacts to traffic and other roadway users are discussed in TRANSPORTATION, IV.C, starting on p. 201. These construction impacts would be temporary and would be considered less than significant.

Lake Rehabilitation Project Construction Impacts

The lakes rehabilitation projects would occur over a ten-year period. Lake rehabilitation projects would disrupt the normal appearance and use of lakes during construction periods. Patterns of groundwater pumping and recharge would be temporarily altered by the draining of lakes for reconstruction and refilling of lakes after project completion. Drainage of sediment materials slurried from the lakes could result in runoff entering the stormwater drainage system. As discussed in the HAZARDS, beginning on p. 259, lakes sediments have been tested and are considered non-hazardous. These temporary construction impacts would not be considered significant.

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[1] City of San Francisco Department of Public Works, *Golden Gate Park Domestic Water Master Plan,* Bureau of Engineering, August 1994.

CUMULATIVE IMPACTS

City Sewer and Drainage Capacities

Under the Park Master Plan, the Park would continue using the City combined sanitary/storm sewer for disposal of all sanitary sewer, and some of its stormwater flows. As described in. POPULATION, starting on p. 199, Park Master Plan projects would not be expected to result in measurable changes in Park visitor levels or the population of adjoining neighborhoods. New and replacement Park facilities that would require sewer service hook-ups include the Tennis and Golf Clubhouses, the central irrigation pumping station, and the proposed west end picnic area (water fountains, restrooms), and the new pipelines listed above.

Groundwater Extraction, Recharge and Quality

Additional use of groundwater in the Westside Basin is proposed under the City of San Francisco's Groundwater Master Plan. Production wells with a combined flow rate of about 1,000 acre-feet per year are proposed for two sites in the west end of the City, with a site in Golden Gate Park (Elk Glen Well). These two wells would begin extracting groundwater to supplement the municipal water supply by approximately 2000. The rate of ground water extraction and well production would be monitored and adjusted to prevent salt water intrusion and to protect water quality. Well operation would overlap with groundwater pumping to supply the Park's interim irrigation supply system, until recycled water deliveries began in about 2002, potentially increasing the cumulative volume of groundwater extracted from the aquifer until recycled water becomes available for irrigation. The long-term water demand from operating wells would be less than existing Park use.[2]

In the near-term ("interim system," 1996 -2005) as shown in Table 37, elimination of municipal water for Park irrigation use would be accompanied by increased groundwater pumping (about 185,000 gpd), in order to meet Park irrigation needs. After deliveries of recycled water begin in approximately 2002, the amount of water being extracted from the groundwater aquifer would be reduced by about 785,000 gpd, to about 45 percent of previous levels.

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[2] City and County of San Francisco, Planning Department, *San Francisco Recycled Water Master Plan and Groundwater Master Plan Environmental Impact Report,Draft EIR*, November, 1996.

Because of the Park's sandy, permeable soils, a portion of the water used to irrigate the Park would recirculate back into the aquifer as it does currently, but the precise amount cannot be accurately estimated. The total lake leakage was measured at 558,000 gpd in the spring of 1994. Leakage at Elk Glen, Middle and North Lakes constituted 77% of this total[3] (Table 37). In the interim period, the groundwater recharge from irrigation would primarily be well water; in the long term, it would primarily be recycled water and overflow from Golden Gate Park lakes. The proportion and quantity of irrigation water that percolates through the soil to the aquifer, rather than evaporating or being absorbed by plants, would potentially be reduced due to implementation of improved irrigation methods and controls. However, the Park lakes would continue to recharge the aquifer as overflow water is released to adjacent leach fields. Groundwater pumping of the Golden Gate Park wells has not been shown to result in saltwater intrusion into the groundwater basin in the past and is not considered by technical specialists to be an issue for implementation of the proposed projects (new wells and lakes reconstruction).[4] Further, as described above, the City Public Utility Commission would be responsible for monitoring wells for salt water intrusion and would adjust pump rates to protect against this occurence.

Irrigation water that could percolate into the aquifer during the interim period (1996 - 2005) would be of slightly lesser quality than at present, since use of the high quality SFWD water would be eliminated. However, because Park well water is of good quality and would mostly be returning to the same groundwater basin from which it was pumped, this interim change to use of well water would not be expected to adversely affect groundwater quality. Also, water quality in lakes would improve from more circulation of water and overflow water would drain back through layers of soil and sand to recharge the aquifer. This water would be of better quality than existing poorly circulated lake water that leaks back to the aquifer.

Potential impacts on groundwater quality of using recycled water for irrigation are analyzed as part of the *San Francisco Recycled Water Master Plan and Groundwater Master Plan, Draft Environmental Impact Report,* City and County of San Francisco, Planning Department,

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[3] Concept Design Report Lakes Rehabilitation, Ace Pacific, 1994.

[4] Geo Resource Consultants, *Golden Gate Park Master Plan Background Report: Geology, Groundwater, and Recycled Water,* prepared for San Francisco Recreation and Park Department, March 1993.

Table 37: MEASURED LEAKAGE FROM LAKES

	(February - April 1994)	
Lake	Inches/Day	Gallons/day
Lily Pond	0.1	1,434
Stow Lake	0	10,277
Lloyd	1.0	40,121
Elk Glen Lake*	1.8	85,570
Metson Lake	1.1	29,509
Mallard Lake	0.8	31,346
Spreckels Lake	0.1	12,251
South Lake	0.2	4,960
Middle Lake*	2.4	85,046
North Lake (South)*	3.0	215,212
North Lake (North)*	1.2	42,278
	Total Leakage	558,004 (338 gpm)

* Note that lakes showing the largest leakage rates are the same lakes where no clay seal was detected - Elk Glen Lake, Middle Lake and North Lake. Together, they leak about 428,106 gallons of water each day (297 gpm) or 77% of the total lake leakage.

November 11, 1996. According to that analysis, the main groundwater quality concern for use of reclaimed water is infiltration of excess nitrates (six times the concentration of groundwater). Phosphorous (phosphate) and nitrogen are found in fertilizer; in water fowl, turtle and fish waste; and from the decay of other organic material. It is this phosphorous and nitrogen in reclaimed water that precludes its use for lake water replacement. The major source of nitrates in the groundwater currently and in the future is believed to be from fertilizers used on landscaped and turf areas on a limited basis, rather than from the recycled wastewater. Measures to manage nitrogen application in the form of fertilizers are included as part of the Park Master Plan project in order to mitigate these potential impacts to groundwater quality. Additionally, with the use of reclaimed water after 2002, fertilizer used for landscape treatment may not be necessary because the nutrient content of reclaimed waters is higher than City water.

Lake Rehabilitation Project Impacts on Groundwater Pumping and Groundwater Recharge

The proposed lake water system, coupled with reduction of lake water leakage, would potentially reduce the Park's rate of groundwater recharge while also decreasing the rate of groundwater pumping through improving the efficiency of the system. As proposed, the lake circulation system would operate approximately eight hours a day seven days a week during daylight hours, at a rate of 500 - 1,000 gpm (about 240,000 to 480,000gpd).[5],[6] This would represent a decrease compared to present groundwater pumping rates for lake replenishment (about 560,000 gpd). Meanwhile, as liner reconstruction successfully curbs lake leakage, the rate of groundwater recharge from Park lakes would be substantially reduced, and limited to lake overflow water discharged to an adjacent recharge basin.

In the near term, (1997 - 2005), the reduction in the rate of groundwater recharge from Park lakes from improved lake liners would be accompanied by an increase in groundwater pumping (about 185,000 gpd) that would occur to compensate for the proposed elimination of potable SFWD water for the Park irrigation system. Although a proportion of all irrigation water, plus rainfall, likely makes its way back to recharge the aquifer, the existing and future quantities are not precisely known. Therefore, a near-term reduction in groundwater recharge from Park lakes would be coupled with increased rates of pumping for irrigation that could result in short-term increases in water use. In the long term after 2002, the reduction in groundwater recharge from Park lakes would be more than offset by reduced overall rates of groundwater withdrawal to be made possible by the proposed shift from well water to recycled water for Park irrigation, described above and shown in Table 36, p. 254. As a result, groundwater quantities should gradually increase.

Lake Rehabilitation Project Impacts on Groundwater Quality

Lake rehabilitation projects would generally be expected to have negligible adverse effects on groundwater quality. General effects would likely be beneficial, for two reasons. First, the design and control of the groundwater recharge system would likely be improved relative to the present process of recharge through uncontrolled lake leakage. Second, lake projects would be intended to help improve lake water quality by, among other things, improving the circulation of water through the lake, increasing the depth of lakes and controlling overhanging vegetation, thus improving the quality of water entering the groundwater.

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[5] STO Design Group, Inc., *Golden Gate Park Lake Rehabilitation Water Exchange Criteria,* prepared for ACE Pacific Company, August, 1995

[6] Gordon King, City and County of San Francisco Department of Public Works, Bureau of Engineering, Project Management Division, Personal communication, January 24, 1996.

J. ENERGY/NATURAL RESOURCES

This section considers whether or not the proposed project would encourage activities that would result in the use of large amounts of fuel, water or energy, or use these in a wasteful manner, or have a substantial effect on the potential use, extraction, or depletion of a natural resource. Section I WATER, SEWER, AND STORM DRAINAGE SYSTEMS, above, describes water use for the Park that draws from the natural aquifer located under the Park.

Energy use for the proposed Golden Gate Park Master Plan would affect electric demand, supplied by PG&E, and fuel consumption associated with construction activities. Projected electric load increases for proposed Park Master Plan projects is estimated to be 2,621 kilowatts (kW).[1] The proposed new pump station for the underground reservoir represents the single highest electric load increase of the proposed project, with an estimated 1,500 kW load demand. The three new proposed well pumps are estimated at 65 kW each. Exterior lighting improvements are estimated to consume about 225,000 kW hours annually based on an average 10 hour per day operation. These increases in electric power demand would be partially off-set by improved efficiency of existing systems.

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[1] ACE Pacific Company, *Golden Gate Park Electrical Power Load Data,* October 1995.

K. HAZARDS

The impact analysis in this section is organized according to the potential exposure categories for hazardous materials/wastes associated with the implementation of Park Master Plan projects. If present, hazardous materials/wastes may be encountered during demolition and renovation of older Park buildings and structures; during excavation for roadway and infrastructure projects; or during renovation of above-ground Park utilities (lighting and electrical systems, and possibly portions of the water and sewer systems).

EXPOSURE TO HAZARDOUS MATERIALS DURING BUILDING DEMOLITION OR RENOVATION

Lead paint and asbestos have been identified within or on Park buildings and facilities that would be affected by the Park Master Plan. Lead paint has been identified throughout the Conservatory of Flowers, which is proposed for restoration. Asbestos has been identified in the Conservatory, County Fair Building, Kezar Pavilion, McLaren Lodge and the Nursery, all of which would be renovated or otherwise altered under the proposed Park Master Plan. In addition, yet-to-be-identified hazardous materials may be present in other buildings and structures proposed for demolition, renovation or alteration under the Park Master Plan. Workers, the public and the environment would be at risk of exposure if hazardous materials are present in a building being demolished, should the materials become airborne or be released accidentally.

POTENTIAL FOR EXPOSURE TO SOIL CONTAMINATION

Preliminary hazardous materials site reviews have been undertaken by the Recreation and Park Department for selected areas that would be affected by Park Master Plan recommended actions. Results of these site reviews are summarized below.

Sediment Testing Related To Lake Rehabilitation

Sediments from the lakes that would be restored under the Park Master Plan were tested in conjunction with technical feasibility studies for the lake restoration projects. The San Francisco Bureau of Water Pollution Control (SFBWPC) conducted chemical analyses in April and May of 1994 on composite sediment samples (20 composite grab samples and 22 lake-water samples) from the following lakes: Elk Glen, Lloyd, Lily Pond, Middle, Mallard, Metson, North, South, Spreckels, and Stow. Samples were analyzed using EPA methods for lead, copper, nitrate, ammonia, phosphorus, and pesticides and herbicides.[1] None of these substances was found at concentrations approaching hazardous waste classification, as defined by Total Threshold Limit Concentration (TTLC) values of Title 22 *(California Code of Regulations)* used by the state of California to classify a waste, in any of the lake sediment samples.[2]

Lead concentrations varied widely from one lake to another, ranging from approximately six milligrams per kilogram (mg/kg) in Spreckels Lake to 178 mg/kg in Mallard Lake. However, within the two to five samples collected from any particular lake, lead levels appeared to be fairly consistent. Copper concentrations (measured without interstitial water) also varied widely, from 29 mg/kg in Middle Lake to 866 mg/kg in Stow Lake. As with lead, copper levels were fairly consistent among the multiple samples in each lake. Concentrations were highest in Stow Lake (averaging over 500 mg/kg in five samples) and Spreckels Lake (113 to 125 mg/kg). Copper levels averaged roughly 100 to 500 mg/kg in all other lakes with the exception of Middle and North, where levels were around 30 to 70 mg/kg. None of the concentrations of these metals approaches hazardous waste classification (TTLC) values, which are about 2,500 mg/kg for copper and 1,000 mg/kg for lead.[3] The presence of copper is explained by a history of algae control measures which utilized copper sulphate.

Previous (1992) sampling and analysis by the SFBWPC had indicated that, except for iron, lead and copper were the most abundant metals in Stow Lake sediments; in those samples, only copper (at 1,160 mg/kg) was shown to be high (but well under TTLC level of 2,500 mg/kg).[4]

Nitrate and ammonia levels were low (but not low from a nutrient standpoint): nitrate ranges from about 0.4 mg/kg to four mg/kg, and ammonia ranged from about one mg/kg to six mg/kg. Total phosphorus was also low (again, not from a nutrient standpoint), ranging from less than .10 mg/kg to 11.5 mg/kg. Pesticides and herbicides were tested using EPA Methods 8080, 8140 and 8150. Among the many compounds detectable with these three methods, only one, para-para prime DDE,[5] was detected. This was found in Elk Glen Lake, averaging 2.4 parts per billion (ppb) and in Metson Lake (1.3 ppb).[6]

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[1] ACE Pacific Company, Concept *Design Report for Lakes Rehabilitation,* prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994: Appendix C, Golden *Gate Park Lake Study, Final Report,* City and County of San Francisco, Department of Public Works, Bureau of Water Pollution Control, July, 1994.

[2] A waste would be considered hazardous for disposal purposes if the total concentration of a metal exceed the TTLC or if the soluble concentration exceeds the soluble threshold limit concentration (STLC). A waste extraction test is required to identify the soluble concentration of a metal. Because this test involves a ten to one dilution of the sample, the soluble concentration could not exceed the STLC unless the total concentration is at least equal to ten times the STLC. If the total concentratrion is less than ten times the STLC, a waste extraction test would not be required and the waste would not be considered hazardous.

[3] ACE Pacific Company, Concept *Design Report for Lakes Rehabilitation,* prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994: Appendix B, *Lakes Sediment Study,* September 1994, pp. B6-B7.

[4] ACE Pacific Company, Concept *Design Report for Lakes Rehabilitation,* prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994: Appendix VI.

Several options are being considered by the project sponsor for disposal and/or reuse of dredged lake sediments. One option is to drain, process and store material after dredging near each lake until dry, and haul to use as a soil amendment. Another option is to transport dredge materials to the former Richmond/Sunset wastewater treatment plan site at the westernmost end of the Park, near the Great Highway and Martin Luther King Drive to be drained and processed. Some of the dredged sediments may be mixed with other soil materials and used within the Park for backfilling or for landscaping purposes.[7] Engineering consultants concluded in the Concept *Design Report for Lakes Rehabilitation* that the sediments are non-hazardous and would be safe for use in the Park landscaping. It would not be necessary to obtain a permit to remove sediments from the Park if disposal off-site is necessary. There are no known regulatory restrictions on the use or disposal of this material.[8]

Soil Testing At Proposed Underground Irrigation Water Storage Reservoir Site

Soil tests were conducted for the proposed underground reservoir site in conjunction with technical feasibility studies for the project. Hazardous materials were not found. Subsurface conditions were explored in August, 1995, by drilling six borings to depths of 40 to 40-1/2 feet below the existing ground surface. Drilling and field testing were performed under the direction of a geotechnical engineer. Both native soils and fill were encountered. No groundwater was encountered in any of the borings.[9]

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[5] DDE is the most commonly found breakdown product of DDT and can bioaccumulate in fish and water fowl tissues.

[6] *Ibid.*, pp. B6-B7.

[7] Sediments from four of the lakes (Stow, Elk Glen, Lloyd and Spreckels) were tested to assess their suitability for horticultural purposes. Although seedlings grown in the Spreckels Lake sample were stunted, possibly due to salinity or copper, the horticultural consultant for the Lakes Rehabilitation Concept Design Report preliminarily concluded that the samples tested have no major characteristics that would preclude their use in a composted soil amendment to incorporate in park landscaped areas. (Letter dated July 26, 1994, from Nelda Matheny, Horticultural Consultant, to Roger Greensfelder, ACE Pacific Company.) ACE Pacific Company, Concept *Design Report for Lakes Rehabilitation,* prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994: Appendix V.

[8] ACE Pacific Company, Concept *Design Report for Lakes Rehabilitation,* prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994, p. 13.

[9] ACE Pacific Company, *Concept Design Report for Irrigation Water Supply System*, prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and

To determine whether soils at the reservoir site are to be handled as hazardous material, soil samples were collected and analyzed for hazardous characteristics per California Code of Regulations (CCR) Title 26 and Title 40 Code of Federal Regulations (CFR) Part 261. Soils were tested for Total Recoverable Petroleum Hydrocarbons (TRPH), Volatile Organic Compounds (VOC), Semivolatile Organic Compounds (SVOC), CAM 17 Metals, and reactivity, corrosivity, ignitability, and acidity. None of the substances tested for were found in concentrations that would appear to be hazardous.[10] Soil corrosivity was found to be low.[11]

As described above, no hazardous materials were discovered during the site investigations conducted to date for proposed lake reconstruction and construction of a new underground reservoir. Few instances of soil contamination within the Park are known and few, if any, are to be expected given the history of the site. If unknown or unexpected hazardous materials/wastes are encountered during project construction activities, the Recreation and Park Department's Industrial Hygienist would be notified and if necessary, the Department of Public Health would be contacted for collection and disposal.

OPERATIONAL USE OF HAZARDOUS MATERIALS

Routine use of potentially hazardous materials such as fertilizers, pesticides and fuel for machinery and vehicles would not be expected to increase as a result of the Park Master Plan. Existing procedures for handling, storage, disposal and management of hazardous materials and wastes would be expected to continue under the Park Master Plan.

Hazardous Materials Dumping In Golden Gate Park

The illegal dumping of hazardous wastes in the Park would not be expected to increase as a result of the Park Master Plan. Existing procedures for handling and disposing of these wastes would be expected to continue under the Park Master Plan.

Parks Department, October 1994: Appendix E, *Report, Soils Investigation, Golden Gate Park Irrigation Water Storage Reservoir,* by D.F. Javete & Associates.

[10] City and County of San Francisco, Department of Public Works, Bureau of Construction Management, *Golden Gate Park Reservoir Site Assessment,* October 12, 1994.

[11] ACE Pacific Company, *Concept Design Report for Irrigation Water Supply System,* prepared under contract to the City and County of San Francisco Department of Public Works, Bureau of Engineering, for San Francisco Recreation and Parks Department, October 1994: Appendix C: *Corrosion Investigation, Golden Gate Park Irrigation Distribution Piping,* by V & A Consulting Engineers.

Project Compliance With The City's Emergency Response Plan

Road closures proposed under the Park Master Plan would not conflict with the City's Emergency Operations Plan (EOP), since no roadways or areas within Golden Gate Park are specifically designated by the EOP for emergency response use. However, information regarding status of roadways within the City is needed by the Office of Emergency Services and the Police, Fire and Parking & Traffic Departments to ensure appropriate response in the event of a major emergency. Therefore, proposed roadway closures in Golden Gate Park would be reviewed by and coordinated with these agencies.

L. CULTURAL RESOURCES

This section addresses potential impacts of Park Master Plan projects on known historic/architectural resources and undiscovered subsurface archaeological deposits.

As identified in the Project Description, Section II, some proposed Park Master Plan projects affecting structures at least 45 years old have been determined exempt from environmental review, or have been previously reviewed and approved by the Recreation and Park Commission (See Table 5, p. 22). In addition, several Master Plan projects affecting landmark structures have already received Certificates of Appropriateness from the Landmarks Board. These previously reviewed projects, listed below in Table 38, are not discussed further in this section.

SIGNIFICANT HISTORIC/ARCHITECTURAL RESOURCES THAT WOULD BE AFFECTED BY PARK MASTER PLAN PROJECTS

Conservatory of Flowers (San Francisco Landmark #50) - Restoration

The Conservatory of Flowers and the valley where it stands are registered National Historic Landmarks. According to the Park Master Plan, the Conservatory is one of the most visible and historically significant structures in San Francisco. The Conservatory building is a genuine Victorian wooden and glass house, delivered from England in 1876 and erected two years later in Golden Gate Park as a gift from the estate of James Lick. Initially, the Conservatory included a second smaller dome; this was destroyed by fire in 1883 and later replaced with a small office building. Nurseries were added to each side of this office in 1948 and a catwalk was installed around the upper dome in 1962. One of the nurseries, known as the Rose House, was so badly deteriorated that it was demolished in 1995.[1]

The Conservatory underwent material reconstruction in 1966 and again in 1981: the original Norwegian Cedar was replaced with Dense Structural Redwood in the Dome Crown and Select Structural Douglas fir in the wings. To date, no effort has been made to seismically strengthen lateral loads in the Conservatory.[2] The structure was damaged in the severe wind and rain storms of December, 1995. The Park Master Plan proposes to restore this structure.

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[1] San Francisco Recreation and Park Department, *Golden Gate Park Draft Master Plan*, March 1995, p. 8-1.

[2] Carey & Company Architecture, *Evaluation of Buildings, Monuments and Statues, Golden Gate Park Master Plan*, April 27, 1993, excerpted from "Seismic Assessment of Various City-Owned Buildings, Department of Public Works, City and County of San Francisco, October, 1993.

Table 38: Previously-Reviewed Historic Structures Affected by Master Plan Projects

Park Master Plan Project	Status	Finding/Approval
Pioneer Log Cabin Rehabilitation	Contributing/a/	Parks Commission Approved 12/9/88 #996-88 NA
Beach Chalet Restoration	Landmark #179	Determined Exempt /c/ (6/18/93); Certificate of Appropriateness (8/19/94)
Carousel Restoration	Contributing/a/	Restored in 1980's NA
Conservatory of Flowers (Rose House) Demolition and Reconstruction	Landmark #50	Certificate of Appropriateness (7/20/94)
McLaren Lodge Access Ramp/b/	Landmark #175	Determined Exempt /c/ (1/23/95) Certificate of Appropriateness (7/20/94)
Equestrian Center Rehabilitation	Contributing/a/	Determined Exempt /c/ (10/27/93)
Richmond-Sunset Sewage Treatment Plant Demolition	Contributing/a/	Southwest Water Pollution Control Plant Final EIR (Certified (8/23/79)

/a/ Ratings by Carey and Company for the "Buildings and Structures Inventory" completed as background information for the Draft Park Master Plan, March 1995. Golden Gate Park buildings are rated as contributory, contributory altered (where the possibility exists for rehabilitation to the original condition) and non-contributory (outside the period of significance or too altered to be rehabilitated)in terms of value to the overall historic context of the Park.

/b/ Additional review may be required for proposed structural improvements to McLaren Lodge.

/c/ Categorically Exempt from CEQA review.

Source: San Francisco Recreation and Park Department, *Golden Gate Park Master Plan Environmental Evaluation,* Draft dated May 5, 1994, Historic Inventory prepared by Carey and Company.

Specific plans for renovation, seismic retrofit and ADA improvements have not been produced at the time of this DEIR. No restoration or alterations would be undertaken without review and issuance of a Certificate of Appropriateness by the San Francisco Planning Department with the advice of the Landmarks Preservation Advisory Board and/or approval by the Planning Commission. Additional environmental review may be necessary when specific renovation plans are submitted for consideration by the Recreation and Park Department.

McLaren Lodge (San Francisco Landmark #175) - Structural Improvements

The lodge was built in 1896 as a residence for Park superintendent John McLaren as well as a headquarters for the Park Commission. Considered an example of Romanesque architecture, it has a red tiled roof and unsurfaced sandstone walls. McLaren Lodge continues as the Recreation and Park Department Headquarters to the present day. Proposed improvements would include adding an access ramp to meet ADA requirements, electrical upgrades, and lighting and irrigation improvements around the area.

No restoration or alterations would be undertaken without design review of proposed project and issuance of Certificates of Appropriateness by the San Francisco Planning Department with the advice of the Landmarks Preservation Advisory Board and/or approval by the Planning Commission. Proposed restoration work would be undertaken in close consultation with the Landmarks Board. A Certificate of Appropriateness would not be approved if the project were determined to cause significant changes to the structure's historic character.

Park Emergency Hospital (San Francisco Landmark #201) - Restoration.

The Park Emergency Hospital was built in 1902 at 811 Stanyan Street and served as the first permanent, freestanding building for the San Francisco Department of Public Health's emergency hospital service. It closed as an emergency facility in 1978, then served as an ambulance station until 1991. The Park Emergency Hospital is a single story structure with brick and stone walls covered with stucco and plaster. The roof is covered in terra cotta tiles and there are two brick chimneys extending above the eaves line. Some renovation work was begun in 1992 by the Recreation and Park Department, but has not yet been completed.

Accessibility and seismic improvements to the building are proposed but are not yet funded. No restoration or alterations would be undertaken without prior review of proposed project and issuance of Certificates of Appropriateness by the San Francisco Planning Department with the advice of the Landmarks Preservation Advisory Board and/or approval by the Planning Commission. Proposed restoration work would be undertaken in close consultation with the Landmarks Board.

POTENTIALLY SIGNIFICANT HISTORIC/ARCHITECTURAL RESOURCES THAT WOULD BE AFFECTED BY PARK MASTER PLAN PROJECTS

Millwright's House (Murphy's Mill House) - Demolition

The Millwright's House was built in 1909 near Murphy's Windmill (designated a historic structure), and is slated for demolition under the Park Master Plan. It is a small (2,200 square-foot), two-story residence with five rooms, brick exterior walls, a gabled, slate-tiled roof, and two brick chimneys. Identified by the Park Master Plan as "contributing" to the Park's overall historic character[3], the Millwright's House was rated 2 overall by the 1976 Planning Department Architectural Survey, on a scale of 0 (low) to 5 (high).[4] Its individual characteristics were rated as follows:

- Relationship of setting to building: 4
- Importance as a contribution to a cluster/landscape: 3
- Facade proportions: 1
- Richness/excellence of detailing/decoration: 2
- Unique visual feature of interest: 0
- Example of a rare or unusual style or design: 0
- Overall architectural quality: 1
- Facade condition: 3
- Paint/material color: 3

Based on a structural, seismic and accessibility evaluation, the Park Master Plan does not consider renovation of the building to be prudent or feasible. Although not a designated National, State or City Landmark, the Millwright's House could potentially be a structure of importance because it is associated historically with the Murphy (South) Windmill and has been characterized as contributing to the historic character of the Park landscape. Its demolition, consequently, could be considered a potential significant environmental impact.

Murphy's (South) Windmill Restoration

Constructed in 1906 near Ocean Beach to pump irrigation water to other parts of the Park, Murphy's (South) Windmill was identified by the Planning Commission as a Structure of Merit. The windmill is also listed in "Here Today", a Junior League publication. The content of the Junior League publication included a survey of City buildings that was recognized and adopted by the Board of Supervisors as an official City-wide survey and inventory of historically significant structures (Resolution 268.70). The largest windmill in the world when it was constructed, it is approximately 100 feet high. The massive, octagonal cast-in-place concrete base is about 50 feet across and 40 feet high, with unreinforced walls two feet thick. On this base is a 60-foot tapering wooden tower covered in slate shingles, surmounted by a rotating, copper-clad cap. Abandoned in the 1950s when the Park irrigation was switched to a motorized water pump, Murphy's Windmill has become dilapidated from neglect.[5] Large pieces of the blade and shaft assembly have fallen to the ground, as have some slate tiles from the tower exterior. The proposed Park Master Plan calls for restoration of the windmill. No adverse impacts would result from restoration.

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[3] Ibid.

[4] City-Wide Architectural Inventory Rating sheet, "Caretaker's Lodge (by Murphy's Windmill)," August 18, 1976.

[5] "Evaluation of Buildings, Monuments and Statues", Carey & Company, April 1993.

No restoration or alterations would be undertaken without prior review by the Landmarks Board and issuance of a Certificate of Appropriateness by the Planning Department.

Kezar Pavilion Rehabilitation

Constructed in 1926, Kezar Pavilion is identified in the Park Master Plan as "contributing" to the Park's overall historic character.[6] Located on the east side of the Park facing Stanyan Street, the building is a one-story structure with reinforced concrete walls and steel frames. With its two or three additions, Kezar Pavilion occupies an area of 37,500 square feet. It has a 4,000-seat gymnasium used for basketball and other court games. Seismic and accessibility improvements are proposed in the Park Master Plan.

No restoration or alterations would be undertaken without prior review by the Landmarks Board. No significant impacts to the structure would result from the proposed seismic and ADA improvements.

Urban Forestry Center, Tennis and Golf Clubhouses - Rehabilitation and Expansions

The Urban Forestry Center (built in the 1930s) and the Tennis Clubhouse (built in 1950) are over 45 years old, and the Golf Clubhouse (built in the 1950s) may be 45 years old or older. None of these structures have been identified as contributing to the historic character of the Park. Proposed Park Master Plan alterations providing for ADA accessibility and restroom facilities within the existing roofline of buildings could require review by the Landmarks Board or Planning Department staff. No significant historic impacts would be expected due to the lack of historical ratings of the buildings.

POTENTIAL FOR AFFECTING BURIED ARCHAEOLOGICAL DEPOSITS

While a literature review resulted in no listings of prehistoric or historic archaeological resources in Golden Gate Park, the area could contain such resources. Buried Native American archaeological sites could include resources such as chert or obsidian flakes, projectile points, mortars, and pestle; and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic resources could include stone or adobe foundations or walls; structures and remains with square nails; and refuse deposits, often in old wells and privies.[7]

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[6] Ibid.

[7] Historical Resources Information System, Northwest Information Center, Sonoma State University, Records and Literature Search Re: Golden Gate Park Master Plan, letter to Deborah Learner, Park Planner, dated July 6, 1995.

If present, buried archaeological deposits could be encountered during land alteration and excavation activities for Park Master Plan projects including roadway and infrastructure projects, renovation and repair of foundations for Park buildings and structures, and alteration of underground Park utilities (lighting and electrical systems, and possibly portions of the water and sewer systems). Uncovering and potentially damaging or destroying archaeological deposits during construction would constitute a potentially significant impact unless mitigated.

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V. GROWTH INDUCEMENT POTENTIAL

Section 15126(g) of the CEQA guidelines requires a discussion of the ways in which a proposed project could induce economic, population or housing growth, either directly or indirectly, in the surrounding environment. Examples of ways a project could induce growth in the surrounding environment include removing obstacles to population growth (for example, by expanding capacities of infrastructure beyond project requirements) or substantially increasing employment levels, which could in turn generate secondary employment or housing effects.

The proposed Golden Gate Park Master Plan would not result in either direct or indirect population growth, nor would it encourage housing or other development in surrounding neighborhoods. Visitor use of the park would not be expected to substantially increase as a result of proposed Park Master Plan projects, and economic activity generated in adjoining neighborhoods by park visitors would not be expected to change. Park employment would increase by an estimated 32 full-time equivalent workers. The indirect or secondary economic activity associated with these new jobs would not be considered significant. Proposed park sewer and electrical infrastructure projects would be designed only to serve park requirements, and would not remove barriers or constraints to growth in other areas.

The proposed Golden Gate Park Water Supply System Master Plan, which assumes availability of recycled water for irrigation after about 2005, would result in a reduction in the use of San Francisco Water Department (SFWD) potable water by about 300,000 gallons per day (gd). To the extent urban growth is constrained by available water supply, this could potentially remove a barrier to development within the service area of SFWD's Hetch Hetchy system, which includes some Peninsula communities as well as the City and County of San Francisco. However, the amount of additional potable water that would become available due to the proposed project's increased efficiency and use of recycled water would represent, relative to overall SFWD system capacity (96 million gallons per day), an insignificant percentage and would not be growth inducing. The amount of additional water that would become available cumulatively through adoption and implementation of the City's Recycled Water and Groundwater Master Plans was not found to induce significant growth in the EIR (92.371E) prepared for those Plans.

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VI. MITIGATION MEASURES PROPOSED TO REDUCE POTENTIAL ADVERSE IMPACTS OF THE PROJECT IMPACTS

In the course of project planning and design, measures have been identified that would reduce or eliminate potential significant environmental impacts of the proposed project. Some of these measures have been, or would be, voluntarily adopted by the Recreation and Park Department and thus are proposed as part of the Master Plan project; some are under consideration and some have been considered and rejected by the project sponsor. Implementation of some measures may be the responsibility of other agencies. Measures under consideration may or may not be adopted by the Recreation and Park Commission, if the Golden Gate Park Master Plan were to be approved.

A. LAND USE, ZONING AND VISUAL QUALITY

No mitigation measures are necessary.

B. POPULATION

No mitigation measures are necessary.

C. TRANSPORTATION

This section describes mitigation measures to offset significant transportation impacts, as well as suggested measures to improve less than significant transportation conditions, resulting from *Draft Master Plan* projects. Each transportation impact identified in Chapter IV is presented in the following tables. Impacts considered significant according to City and CEQA quidelines and their recommended mitigation measures are shown in the tables in **bold** typeface. Impacts which are not significant but would nonetheless be reduced with a transportation improvement are shown in normal typeface.

Note that roadway closures are denoted “Close”, traffic calming measures as “Calm”, intersection improvements as “Inter.”, and commuter parking restrictions as “Pkg.” in the following tables.

Traffic Improvement Measures

Table 39 summarizes potential improvement measures and recommendations related to traffic impacts. Figures 30 and 31 illustrate recommended improvements.

Table 39: Traffic Impact Mitigation and Improvement Measures

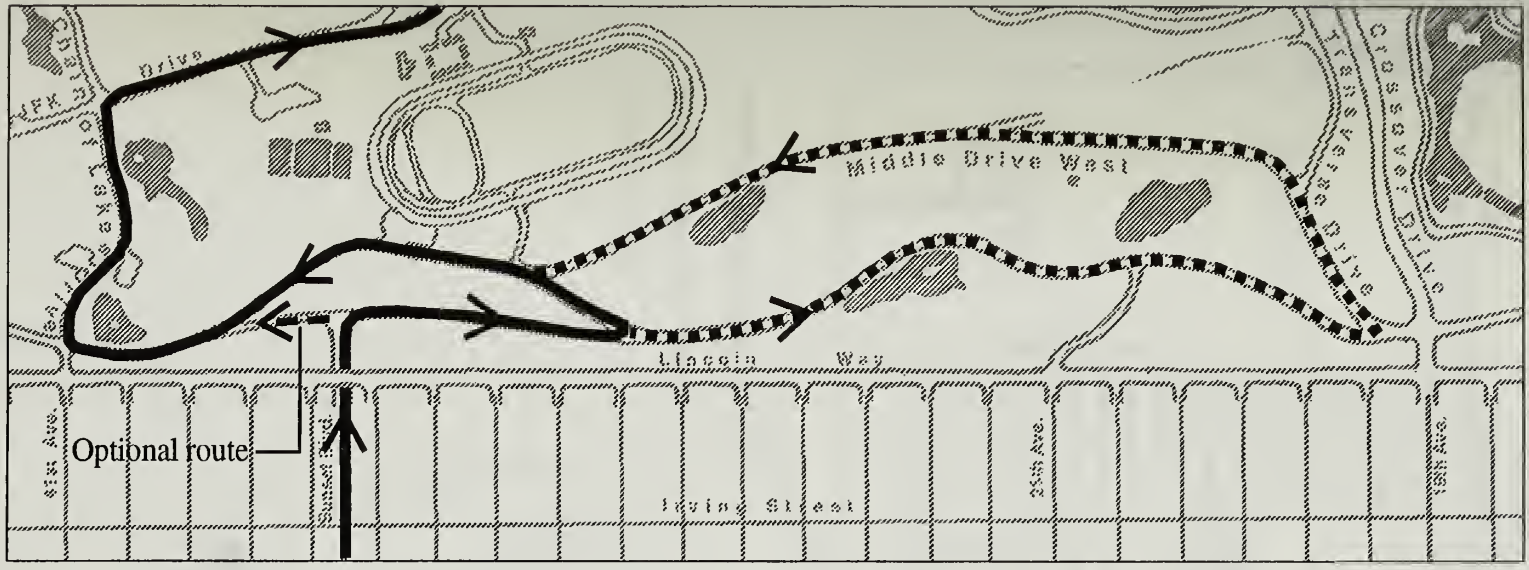
Project	Impact(s) (significant impacts bolded)	Improvement (not bolded) or Mitigation (bolded)	Responsible Agency
All Scenarios			
• Middle Drive West (Close)	Severs 49 Mile Drive Scenic Route.	Revise route. See Figure 32 for possible routes.	Dept. of Parking and Traffic
• Music Concourse Roadway (Close)	Potential bus/auto conflicts and congestion.	Develop alternative access plan. See Figure 33 for possible concepts.	Recreation and Park Dept.
• Waller Street Closure (Close)	Adds 120 to 160 vehicles and exacerbates LOS F delays for northbound left-turns at 3rd/Lincoln. Adds 400 to 500 additional vehicles per hour to Stanyan Street across pedestrian crosswalk at Beulah Street, potentially increasing liklihood for auto/pedesrian conflicts.	Conduct traffic signal warrant analysis and install traffic signal at 3rd/Lincoln when warranted. Install advance crosswalk warning signs on Stanyan north and south of Beulah.	Recreation and Park Dept., Dept. of Parking and Traffic
• Other Roadway Closures (Close)	No significant impacts.		
• Tea Garden Drive (Calm)	Stopped car or bus would congest right-hand lane in alternatives A and B.	Do not allow parking within either of the two travel lanes. Incorporate bus pull-out.	Recreation and Park Dept. and MUNI
• **Stanyan/Kezar (Inter.)**	**"All bicycle" signal phase would cause LOS E and F weekday conditions and LOS D and F Sunday conditions base case and 2005, respectively, with the project).**	**Exclude exclusive signal phase and diagonal bikeway crossing from project. Include eastbound median pathway on JFK Dr. and eastbound bicycle crossing at intersection. For bicycle mitigation, see "Stanyan/Kezar" in Table 43.**	**Dept. of Parking and Traffic**
• Parking Limits in East Park (Pkg.)	Would increase traffic volumes on roadways and intersections southeast of the Park.	Develop traffic count monitoring program at selected intersections. See Table 42.	Recreation and Park Dept.

(continued)

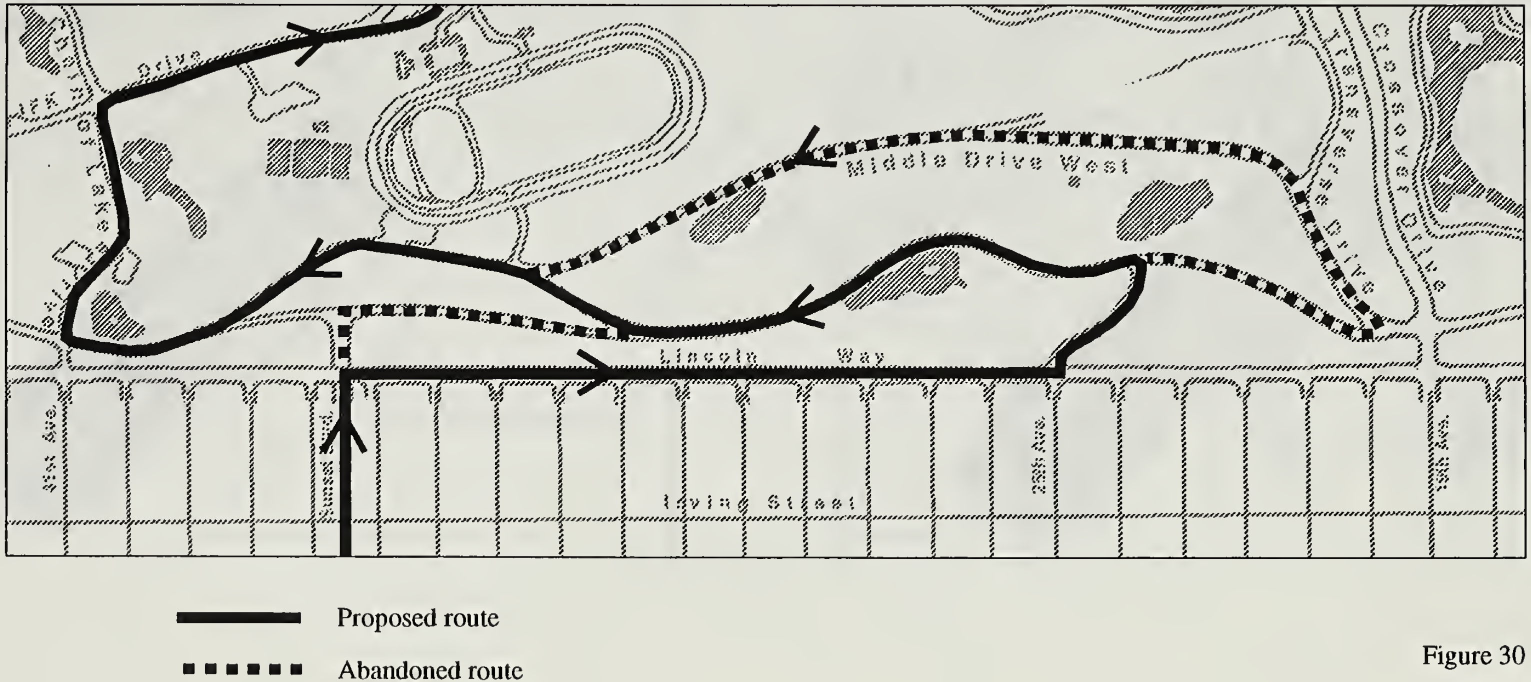
Table 39: Traffic Impact Mitigation and Improvement Measures (continued)			
Project	**Impact(s) (significant impacts bolded)**	**Improvement (not bolded) or Mitigation (bolded)**	**Responsible Agency**
Scenario 1			
• Conservatory Drive East (Close)	Affects Stanyan/Fulton intersection. See below.	See below.	See below
• Stanyan/Fulton (Inter.)	Would degrade from LOS E to LOS F during weekdays in base case and 2005 with the project.	Either improve intersection (as in Scenario 2) or do not close Conservatory Drive East.	Recreation and Park Dept. and Dept. of Parking and Traffic
Scenario 2			
• See "All Scenarios"	See "All Scenarios"	See "All Scenarios"	See "All Scenarios"
Scenario 3			
• **19th-Crossover/Lincoln (Inter.)**	**Would degrade to LOS E during weekdays in 1995 (and to LOS F on Sundays in 2005.)**	**No feasible or prudent mitigation measures have been identified to mitigate the potentially significant impacts associated with this measure.**	**N/A**
• 36th/Lincoln (Inter.)	Northbound to westbound stop sign-controlled left-turn movement would degrade from LOS E to LOS F during Sundays in 2005.	No improvement recommended.	N/A
• Crossover/MLK Jr. (Inter.)	Would increase traffic levels on Irving Street between 19th Avenue and 20th Avenue substantially, resulting in peak hour congestion along these roadway segments. Unsafe U-turn movement would likely occur to the east of the intersection.	No feasible or prudent improvement measures have been identified.	N/A

Table 39: Traffic Impact Mitigation and Improvement Measures (continued)

Project	Impact(s) (significant impacts bolded)	Improvement (not bolded) or Mitigation (bolded)	Responsible Agency
Scenario 4			
• Sunset Boulevard (Close)	Severs 49 Mile Drive Scenic Route.	Develop alternative access plan. See Figure 40, Alternative 2 for possible route.	Dept. of Parking and Traffic
• **19th-Crossover/Lincoln (Inter.)**	**See Scenario 3.**	**See Scenario 3.**	**N/A**
• Sunset/Lincoln (Inter.)	Eastbound to southbound motorists would "cut through" on 37th Ave. and northbound to eastbound motorists would "cut through" on 36th Ave.	Close 36th Ave. and 37th Ave. at Lincoln Way. Develop cul-de-sacs at the northern end of these roadways.	Dept of Parking and Traffic
• Crossover/MLK Jr. (Inter.)	See Scenario 3.	See Scenario 3.	N/A

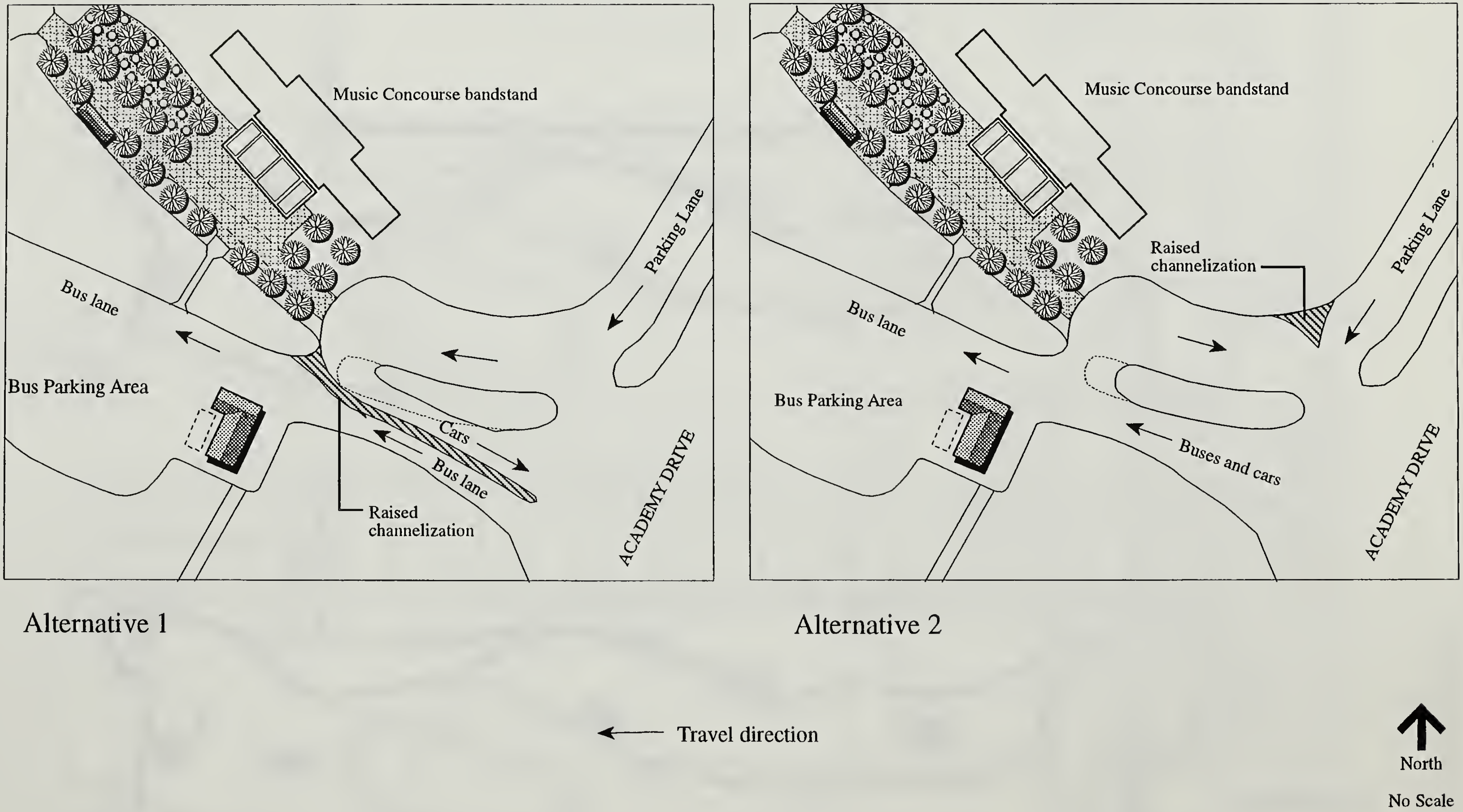


Alternative 1



Alternative 2

Figure 30
49-Mile Scenic Drive
Alternative Routings


Alternative 1

Alternative 2

Figure 31

Music Concourse Alternative Circulation Plans

Source: Royston Hanamoto Alley & Abey

Transit Improvement Measures

Table 40 discusses potential improvement measures and recommendations related to transit impacts.

Table 40: Transit Impact Improvement Measures

Project	Impact(s) (none significant)	Improvement Measures	Responsible Agency
• Tea Garden Drive Alternatives (Calm)	Stopped bus would congest right-hand lane in Alternatives A and B. Transit shelter may be too far from curb for either alternative.	Incorporate bus pull-out into Alternatives A and B. Relocate transit shelter closer to curb.	Recreation and Parks Dept. and MUNI
• Stanyan/Fulton (Inter.)	With second northbound to westbound left-turn lane added, bus stopped on Fulton may block traffic from new lane, congesting the intersection. Overhead trolley wires may need to be re-aligned.	Relocate bus stop approximately 1/2 block to the west.	Dept. of Parking and Traffic and MUNI
• Powell Street Railway Station (Bldg.)	Overhead trolley wires may need to be re-aligned and existing transit shelter removed if portal used by MUNI.	Re-align overhead trolley wires and remove existing transit shelter. For parking impacts, see “Powell Street Railway Station” in Table VI-3.	Dept. of Parking and Traffic and MUNI

Parking Improvement Measures

Table 41 discusses potential Improvement measures and recommendations related to potential parking impacts.

Table 41: Parking Impact Improvement Measures

Project	Impact(s) (none significant)	Improvement Measures	Responsible Agency
Parking Impacts Within the Park			
• Roadway Closures and Commuter Parking Restrictions (Close/Pkg.)	See below.	See below.	See below.
Parking Impacts Northeast of the Park			
• Roadway Closures and Commuter Parking Restrictions (Close/Pkg.)	Closures and restrictions would displace about 70 weekday commuter vehicles. However, this is not considered a significant impact since up to 80 vehicles could be accommodated in nearby on-street parking spaces.		
• Powell Street Railway Station (Bldg.)	About 195-feet of on-street parking in front of the portal on Fulton St. would need to be removed if portal used by MUNI.	Convert the existing 195-foot bus zone, located just to the west, to on-street parking.	Dept. of Parking and Traffic
Parking Impacts Southeast of the Park			
• Roadway Closures and Commuter Parking Restrictions (Close/Pkg.)	Closure of roadways and parking restrictions in the southeast area of the Park would displace about 430 weekday commuter vehicles. Considering availability of nearby on-street parking spaces, about 360 commuter vehicles would not be accommodated within the public on -street parking system.	Phase-in the parking restrictions to ease impact and gradually encourage parking at paid facilities, ride-sharing, or use of transit. Initially, restrict parking along all of the Park roadways except for Kezar Dr. (140 spaces), Waller St. (40 spaces), and MLK Jr. Dr. between Kezar Dr. and Bowling Green Dr. (40 spaces). Next, restrict parking on Waller St. and the MLK Jr. Dr. segment. Consider installation of long-term parking meters (up to 12-hour limit) to accommodate commuter parking along Kezar Drive to reduce impact. Coordinate efforts with UCSF transportation office and discourage employees from driving by providing assistance with alternative means.	Recreation and Park Dept. and Dept. of Parking and Traffic

Pedestrian and Bicyclist Improvement Measures

Table 42 discusses potential improvement measures and recommendations related to pedestrian and bicyclist impacts.

Table 42: Pedestrian and Bicyclist Impact Improvement Measures

Project	Impact(s) (none significant)	Improvement Measures	Responsible Agency
• Tea Garden Drive Alternatives (Calm)	Bicyclists would not be accommodated in an exclusive bike lane and would share a travel lane with (slow) vehicular traffic.	Consult with DPT about potential need for exclusive bicycle lane.	Recreation and Park Dept. and Dept. of Parking and Traffic
• Stanyan/Kezar (Inter.)	Would pose up to five unsafe conditions to pedestrians and bicyclists.	Exclude bicycle signal phase and diagonal bikeway crossing from project. Require westbound bicyclists to cross Fell St. and Stanyan St. using existing crosswalks (install signs and barriers). Proposed eastbound bicycle median pathway on Kezar Dr. should be raised above roadway or protected with barriers. Install signage to prohibit pedestrians from median pathway. Install special crossing striping for eastbound bicycle lane crossing Stanyan St. Install special signage to alert eastbound JFK Drive motorists (at Kezar/JFK intersection) that bicyclists will be merging left to access Kezar Drive median pathway.	Dept. of Parking and Traffic

Construction Improvement Measures

Table 43 discusses potential improvement measures and recommendations related to Park visitors and utility construction. In addition to the specific measures discussed below, it is recommended that roadway closures and parking disruptions not be allowed on weekends or holidays.

Table 43: Utility Installation Improvement Measures

Project	Impact(s) (During Construction	Improvement Measures	Responsible Agency
Bowling Green Drive	Entire roadway closure throughout construction period.	Detours along JFK Drive, MLK Jr. Drive and Middle Drive East.	Recreation and Park Dept.
Chain of Lakes Drive	Entire roadway closure throughout construction period.	Detours along 47th Avenue, JFK Drive and MLK Jr. Drive.	Recreation and Park Dept.
Conservatory Drive	Daytime roadway closure of entire roadway.	Detours along Fulton Street, Stanyan Street, 8th Avenue, and JFK Drive.	Recreation and Park Dept.
JFK Drive	Loss of 20 parking spaces per day.	Restore on-street parking during non-construction periods.	Recreation and Park Dept.
JFK Drive	Daytime closure of one traffic lane or daytime roadway closure.	Traffic control or detours to Middle Drive and MLK Jr. Drive.	Recreation and Park Dept.
Kezar Drive	Temporary closure of one westbound lane and loss of 10 parking spaces per day.	Limit closure to non-peak periods only and restore on-street parking during non-construction periods.	Recreation and Park Dept.
MLK Jr. Drive, west of Crossover Drive	Daytime closure of one traffic lane.	Traffic control and advance warning signs suggesting alternative routes.	Recreation and Park Dept.
MLK Jr. Drive, east of Crossover Drive	Loss of 5 - 20 parking spaces per day.	Restore on-street parking during non-construction periods and install advance warning signs suggesting alternative routes.	Recreation and Park Dept.
Middle Drive East	Loss of 20 parking spaces per day.	Restore on-street parking during non-construction periods.	Recreation and Park Dept.
Middle Drive West	Daytime closure of one traffic lane or daytime roadway closure.	Traffic control or detours to JFK Drive and MLK Jr. Drive.	Recreation and Park Dept.
Tea Garden Drive	Impaired access to driveways, parking lot, museum	Maintain access to, from and along Tea Garden Drive during construction.	Recreation and Park Dept.
10th Avenue	Loss of up to 20 parking spaces per day.	Restore on-street parking during non-construction periods.	Recreation and Park Dept.
36th Avenue	Parking prohibited each day along roadway.	Flaggers needed to warn motorists of roadway curve.	Recreation and Park Dept.
47th Avenue	Daytime closure of one traffic lane.	Traffic control and advance warning signs suggesting alternative routes.	Recreation and Park Dept.

Final construction plans should stipulate specific performance requirements for work schedule and traffic control that the contractor must meet. The performance requirements could require adherence to specific lane closure schedules. Ideally, disruption should be limited to the immediate construction area that a contractor will be working in on a particular day.

Table 44 discusses potential improvement measures and recommendations related to construction-related truck routing and vehicle parking.

Table 44: Construction-Related Truck Routing and Parking Improvement Measures

Project	Impact(s)	Improvement Measures	Responsible Agency
DPW has developed truck routings for all of the Draft Master Plan projects. Preferred routes are along Park Presidio Blvd., 19th Avenue, Great Highway, Fell St., Oak St., and along Stanyan St. and 25th Ave. via California St.	Construction-Related Truck Routing	Contractor must submit transportation plan for construction workers. Trucks would be required to travel along pre-approved routes. No construction would be allowed on weekends or during peak traffic periods along selected roadways.	Recreation and Park Dept. and Dept. of Parking and Traffic
Construction-Related Vehicle Parking	Parking for construction vehicles could displace parking for Park visitors. Construction equipment stored on-street could also displace parking for Park visitors.	Contractor to secure parking for construction workers in areas with low Park visitor parking demand. On weekends, construction equipment to be stored off-road.	Recreation and Park Dept.

D. NOISE

No significant noise impacts from the proposed project have been identified; No mitigation is required. Measures required by the City Noise Ordinance, Article 29 of the City Police Code will limit evening noise (8:00 pm to 7:00 am) to 5 dBA over ambient noise and will limit construction equipment noise to 80 dBA, Ldn at 100 feet.

IMPROVEMENT MEASURES PROPOSED AS PART OF THE PROJECT

1. Construction activities would be limited to daytime working hours (7 a.m. to 5 p.m., weekdays only)

2. Haul trucks would be prohibited during the nighttime hours (8 p.m. to 7 a.m., pursuant to Section 2901, Article 29, Regulation of Noise) to minimize noise impacts on residents living along haul routes. To the extent practicable, haul and truck routes would avoid schools.

3. Hydraulically or electrically powered impact tools (e.g., jack hammers, pavement breakers, and rock drills) would be used wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed air exhaust would be used; this muffler can lower noise levels from the exhaust by about 10 dBA. External jackets on the tools themselves would be used where feasible, and this could achieve a reduction of 5 dBA.

4. Enclosures for pumps, blowers, fans, emergency generators and other stationary noise sources would be designed to provide maximum noise attenuation to meet the performance standard of no greater than 5 dBA over ambient noise levels, as specified in Section 2901.11 of Article 29. Such measures could include: installation of acoustical louvers or mesh grilles on all openings to buildings which house pumps, blowers, generators, or other noise generating equipment; use of masonry building materials for maximum noise attenuation; and location of vent openings on the sides of enclosures directed away from sensitive receptors.

E. AIR QUALITY/CLIMATE/SHADOWS

To reduce the potential for violation of the California 24-hour PM_{10}, dust controls would be implemented by construction contractors for individual Park Master Plan projects as follows:

- Controls would be required to minimize the deposition of dirt from construction areas onto adjacent roadways. Park roadways would be swept daily with water sweepers.

- Continuous dust suppression using non-potable water would be employed during all dust-generating construction activities such as pavement cutting, drilling on rock, excavating, excess soils loading, and hauling and temporary stockpiling. Areas where breaking of ground is to occur would be watered down before grading and excavation commences.

- At least twice a day (seven days per week) and more frequently on dry or windy days, all areas of the construction site that could potentially generate wind-carried materials or dust would be wet down.

- Soil stockpiles to be left unattended for more than 24 hours (such as weekends or holidays) would be covered with tarps and lightly sprinkled down twice daily or misted by hand to control dust emissions. Tarps would be secured and weighted so as to prevent them from being blown off.

- The street areas adjacent to the construction site would be mechanically swept and washed down daily at the end of the workday. Unpaved roads would be watered three (3) times daily or paved prior to construction use.

- Material delivered or removed from the construction site that could generate dust would be covered at all times. Haul trucks would not be overfilled and loads would be covered with tarpaulins.

- Soil stabilizers would be applied to exposed soil in inactive construction areas.

- Earth-moving activities would be halted, or otherwise controlled to minimize dust, when winds exceed 20 miles per hour in unprotected areas.
- Construction contractors would utilize equipment with recent (within 30 days) low NO_2 tune-ups, and low sulfur diesel fuel would be required for use in the Park.
- Traffic on unpaved roads would be limited to 15 mph.
- Sandbags or other erosion control measures would be used to prevent silt runoff to public roadways.

F. UTILITIES AND PUBLIC SERVICES

No mitigation necesary.

G. BIOLOGY AND WETLANDS

MITIGATION MEASURES PROPOSED AS PART OF THE PROJECT

1. Avoid, Minimize, and Compensate for Potential Impacts on Jurisdictional Wetlands

Some of the artificial lakes and water bodies in Golden Gate Park are considered jurisdictional by the Army Corps of Engineers (the Corps) under Section 404 of the Clean Water Act. Dredge or fill activities in jurisdictional areas may require issuance of a Section 404 permit. To determine jurisdictional status, a wetland delineation will be conducted using Corps-approved methodologies. Before ground-disturbing activities begin in artificial lakes and water bodies, the wetland delineation would be submitted to the Corps, along with a description of the project, an assessment of possible project impacts on potentially jurisdictional areas, a description of compensatory mitigation that will be undertaken to offset project impacts, and a letter requesting a determination of jurisdictional status. If the Corps determines the artificial lakes and water bodies are jurisdictional, implement the following mitigation, if required by the Corps:

- Avoid or minimize project impacts on Corps-jurisdictional areas.
- Compensate for unavoidable impacts on jurisdictional areas by implementing Corps-approved compensatory mitigation. Mitigation may include restoration or creation of lost wetland habitat values and acreage at a ratio exceeding one acre of compensatory habitat for each acre impacted. Compensatory mitigation is typically required in the vicinity of the project, preferably within the watershed of the impact, but may include both on-site and off-site mitigation.
- Development of a Habitat Protection Plan and construction specifications to include worker education on the location of sensitive habitat area; restrictive signage and fencing during construction; flagged areas; a biological monitor on-site during construction activities.

2. Avoid or Minimize Southwestern Pond Turtle Mortalities During Construction.

To reduce impacts on southwestern pond turtles to less than significant levels, implement the following.

a. Trap and Relocate Turtles.

To avoid or minimize turtle mortalities during construction, a qualified biologist will be retained by the Park to trap and relocate southwestern pond turtles from construction areas, in consultation with the California Department of Fish and Game and US Fish and Wildlife Service. The biologist conducting relocation activities will be required to obtain permits from the Department of Fish and Game and US Fish and Wildlife Service to handle southwestern pond turtles and comply with permit conditions. The biologist will record the age and sex of captured turtles to provide baseline information on the impacted population. Trapping and relocation activities will be undertaken as close to start of construction as possible. For most lakes, turtle relocation could be accomplished within fourteen working days of the start of ground-disturbing activities. Public access to relocation will be limited by installing temporary fencing (when required) and signage around relocation sites.

A suitable relocation site in an adjacent or near-by lake will be identified by the biologist in consultation with regulatory agencies. The relocation site should be close to the construction site, should not already support southwestern pond turtles, and should have vegetation and hydrologic conditions (e.g., water depth, temperature, oxygen content) that are similar to the impacted habitat. Depending on site-specific conditions and duration of construction, a temporary exclusion fence may be installed around active construction sites or relocation sites to ensure turtles do not re-enter cleared construction areas. Installation of basking sites and/or modification of adjacent vegetation may be undertaken, as appropriate, to ensure relocation sites are suitable to support turtles. Supplemental feeding of relocated turtles may be required.

b. Monitor Construction Activities

The biologist will monitor dewatering and initial ground-disturbing activities in cleared construction sites to help ensure turtle mortalities are avoided or minimized. After initial ground-disturbance, the biologist will monitor construction sites for turtles once weekly, or as required based on construction schedules and activities. The biologist will also monitor turtle relocation sites to ensure proper functioning of temporary impoundments and suitable condition of relocated turtle population.

c. Add Turtle Protection Measures to Plans and Specifications

Special provisions will be added to the plans and specifications for the Lakes rehabilitation and Rainbow Falls restoration projects that will require the contractor to:

- begin work only after turtles have been cleared from construction areas,
- prohibit the contractor from conducting work in designated turtle relocation sites,
- allow the biologist access to construction sites and authority to notify the Resident Construction Engineer to stop construction to ensure protection of turtles, and
- require the contractor to notify the designated biologist and resident engineer or project representative if turtles are found in active construction areas, and require contractor to stop work for up to 24 hours to allow for relocation of turtles.

d. Reintroduce Turtles into Rehabilitated Lakes and Monitor Reintroduced Populations

The biologist will assist the Recreation and Park Department with determining suitability of rehabilitated lakes for turtles before reintroduction is undertaken. Habitat suitability for turtles will be determined based on:

- presence of suitable water quality (i.e., absence of construction-related toxic substances, such as petroleum products; acceptable turbidity levels; presence of sufficient oxygen levels) and
- successful installation of revegetation materials (e.g., emergent aquatic vegetation plugs) and basking sites (e.g., submerged logs) as specified in bid documents.

Following a determination of suitability, turtles will be relocated into the original habitat and monitored annually for 5 years to ensure successful re-establishment of the turtle population. Relocation will be considered successful when approximately the same number of turtles are present with approximately the same population structure (i.e., age-class distribution and ratio of females to males) as were present in the original turtle population. If necessary, remedial measures will be developed and implemented by the biologist in consultation with the Department of Fish and Game and US Fish and Wildlife Service.

3. Incorporate Turtle Habitat Requirements into Lakes Rehabilitation and Rainbow Falls Reconstruction Design Specifications

Under the Lakes rehabilitation program, portions of the lakes and Rainbow Falls Pond that support southwestern pond turtles have been identified as planting sites for emergent aquatic vegetation and for wildlife habitat[1]. To ensure these sites are planted with vegetation suitable for southwestern pond turtles, as well as, other wildlife species and compatible with maintaining lake seal integrity, incorporate one or more of the following requirements into design specifications.

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[1] Keller, Mitchell and Carrona, *Lakes Rehabilitation; Edges and Perimeter Treatments*, 1994

- Specify types and amounts of emergent aquatic vegetation to be planted in designated turtle habitat areas in consultation with a qualified biologist or restoration specialist familiar with turtle habitat requirements. A list of species considered suitable for planting in turtle habitat areas is included in Appendix C.

- Ensure grading plans include shallow zones and specify a "feathered" or gently sloped lake edge in areas to be planted with emergent aquatic vegetation.

- Require retention of existing snags that are currently used as turtle basking sites (as appropriate for park safety) or require installation of a similar number of turtle basking sites (e.g., submerged logs or similar structures). Basking structures may be secured to the lake bottom with cables or chains.

- Require retention of upland shrubs, such as willows, that provide protection from turtle predation. Shrubs to be retained will be protected during construction by installing a temporary construction barrier, such as orange mesh fencing. If shrubs cannot be retained, replacement plantings of native willows (*Salix* spp.) or similar native shrubs is recommended at a ratio of one replacement shrub for each shrub impacted. A list of suitable lakeside shrubs is included in Appendix C.

- Require installation of planting materials before turtle populations are re-introduced into original lakes.

4. Eliminate or Reduce Potential for Impacts on California Red-legged Frogs in Strybing Arboretum.

Because the schedule and footprint of construction activities proposed under the Strybing Arboretum Special Area Plan cannot be precisely determined until specific design plans are available, the following mitigation options are provided to cover a range of likely construction scenarios. Implementation of one or both of these options would be required to reduce potential for impacts on California red-legged frogs to a less-than-significant level. Formal consultation would be required with the U.S. Fish and Wildlife Service, pursuant to Section 7 of the Endangered Species Act.

a. Restrict Ground-Disturbing Activities During Frog Migration Periods

For construction activities with a relatively short duration (e.g., three months or less) or that can be accomplished during any time of the year, implement the following.

- Temporarily separate construction activities from frog migration periods by restricting ground-disturbing activities within 0.25 mile of the pond occupied by red-legged frogs from November 1 to August 15.

b. Install Barrier Fencing and Monitor Construction

For construction activities of long duration (i.e. greater than three months), and for activities that cannot be accomplished outside frog migration periods (i.e., November 1 to August 15), implement the following:

- Retain a qualified biologist to install barrier fencing and pit traps around the pond occupied by California red-legged frogs in the Strybing Arboretum before the frog migration period begins (approximately November 1) during each year of active construction. The biologists will be required to coordinate with The Department of Fish and Game and US Fish and Wildlife Service on the type and location of barrier fencing and pit traps to be used, and on the frequency of monitoring pit traps (to minimize potential for frog mortalities). The biologist will be required to obtain and comply with necessary state and federal incidental take provisions or handling permits for California red-legged frog species before initiating work.

- Require the biologist to monitor initial ground-disturbing activities in construction sites and any dewatering activities that are proposed in Arboretum fountains and waterways. After initial ground-disturbance, the biologist will monitor construction sites for frogs as required, based on construction schedules and activities. The biologist will also monitor the occupied pond to ensure proper functioning of barrier fencing and pit traps. Fencing and traps will remain in place until the end of construction, or after August 15.

- Prepare Contractor bid specifications to restrict contractor from working or trespassing within the fenced California red-legged frog areas.

- Provide the designated biologist with the authority to stop construction, in conjunction with the resident engineer or project representative, as necessary to ensure protection of frogs.

Improvement measures for sensitive plant species, waterfowl habitat, and nesting raptors have been described in Biology Impacts, Chapter IV. G.

H. GEOLOGY AND TOPOGRAPHY

I. WATER, SEWER, AND STORMWATER

J. ENERGY

No mitigation required for Geology, Topography, Water, Sewer, Stormwater or Energy.

K. HAZARDS

Mitigation measures required by law are addressed in the Setting section. No other mitigation measures would be necessary.

L. CULTURAL RESOURCES

MITIGATION MEASURES PROPOSED AS PART OF THE PROJECT

1. There is evidence of potential historical significance of the Millwright's House, due to its age and association with Murphy's (South) Windmill, a designated Structure of Merit. Although the Millwright's House is not a designated architectural or historical resource, its proposed demolition may constitute a significant impact because the potential significance of the structure cannot be ruled out. Therefore, at the time a building permit for demolition is proposed, the Recreation and Park Department would retain the services of a qualified

architectural historian to evaluate the structure under National Register and other appropriate criteria. If, on the basis of the evaluation, the structure is not deemed to have resource value warranting National Register eligibility or local designation, the demolition would not be considered a significant impact and no further mitigation would be necessary. If the evaluation finds the structure to merit eligibility for National Register listing or local designation, then demolition would be considered a significant impact. The impact could be reduced, but not avoided, by the following measures: Documentation and recordation of the facility to Historic American Building Survey (HABS) standards; installation of a display about the facility (photo documentation, information about relationship to Murphy (South) Windmill; etc.) at the proposed replacement structure or another suitable location such as the Beach Chalet Park Visitor's Center; and possible further measures as recommended by the Planning Department and/or Landmarks Preservation Advisory Board.

2. If archaeological remains are discovered during excavation activities, land alteration work in the general vicinity of the find would be halted immediately and a qualified archaeologist retained. Project personnel would be instructed not to collect resources. The archeologist would assess the significance of the find, and immediately report to the Environmental Review Officer (ERO) and the President of the Landmarks Preservation Advisory Board (Landmarks Board). Upon receiving the advice of the consultants and the Landmarks Board, the ERO would recommend specific mitigation measures, if necessary. If prehistoric archaeological deposits are discovered, local Native American organizations would be consulted and involved in resource management decisions.

If cultural resources of potential significance are discovered, an appropriate security program would be implemented to prevent looting and destruction. Any discovered cultural artifact assessed significant by the archaeologist, upon concurrence by the ERO and President of the Landmarks Board, would be placed in a repository for such materials or displayed in a public place to be determined in conjunction with the ERO and the President of the Landmarks Board.

The archaeological consultant would prepare a written report first and directly to the ERO, with a copy to the Recreation and Park Department (project sponsor). Identified archaeological resources would be recorded on State Office of Historic Preservation on forms DPR 523 or similar forms.

Excavation or construction activities that might damage discovered cultural resources would be suspended for a total maximum of four weeks over the course of construction to permit inspection, recommendation and retrieval, if appropriate.

VII. OTHER TOPICS REQUIRED BY CEQA

SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

In accordance with Section 21082.2 of the California Environmental Quality Act (CEQA), and with Section 15126 of the State CEQA Guidelines, the purpose of this Section is to identify impacts that could not be eliminated or reduced to an insignificant level by mitigation measures included as part of the proposed project, or by other mitigation measures that could be required implemented. A listing of specific impacts that are not mitigated will be part of the decision-making documents.

The findings of significant impacts are subject to final determination by the City Planning Commission as part of its certification process for the EIR. This chapter in the Final EIR will be revised, if necessary, to reflect the City Planning Commission's findings. If all mitigation measures are adopted, the following unavoidable significant effects would or could occur:

Two significant environmental impacts that cannot be avoided or mitigated if the proposed Golden Gate Master Plan is implemented have been identified.

The 19th Avenue/Crossover Drive/Lincoln Avenue intersection would degrade to LOS E during weekdays under current conditions (and LOS F during weekdays with or without Park Master Plan implementation in 2005) as a result of traffic rerouting from Crossover Drive. No feasible mitigation measures have been identified.

Although the Millwright's House is not a designated architectural or historical resource, its proposed demolition may constitute a significant impact because the potential significance of the structure cannot be ruled out.

SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE INVOLVED IF THE PROPOSED MASTER PLAN SHOULD BE IMPLEMENTED

This section of CEQA calls for a discussion of the uses of nonrenewable resources during the initial and continued phases of the project that could be irreversible because of a commitment of resources that make removal or nonuse of the resource unlikely thereafter. One potentially irreversible impact associated with the Building and Monuments Element of the Park Master Plan has been discussed in Section V of the EIR: the proposed demolition of the Millwright's House that would result in the irreversible removal of a potentially historic property in the Park.

VIII. ALTERNATIVES TO THE PROPOSED PROJECT

This Section identifies alternatives to the proposed project and discusses environmental impacts associated with each alternative. The range of alternatives must focus on those alternatives which would feasibly attain most of basic project purposes and avoid or substantially lessen any of the project's significant effects. The EIR is required to briefly describe the rationale for rejecting those alternatives considered but removed from detailed study. The factors taken into account when selecting an alternative may include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitation, jurisdictional boundaries, and whether the project proponent can reasonably acquire, control or otherwise have access to the alternative. Sufficient information on alternatives is required to allow meaningful evaluation and comparison with the proposed project. (Section 15126 of Title 14 California Code of Regulations as amended 1994, CEQA Guidelines).

As part of the environmental review process for the Park Master Plan projects, three alternatives were analyzed. Based on environmental and public review, the Recreation and Park Commission could select an apparent best alternative or a combination of various elements of the alternatives for detailed design and implementation. The three alternatives analyzed in the EIR are:

- Alternative 1. No Park Master Plan
- Alternative 2. More Road Closures
- Alternative 3. Preservation of Potential Historic Property (preserve the Millwright's House for Park use)

Note that the main EIR analysis separated various major proposed road closures / restrictions proposed by the Park Master Plan so that impacts of each could be isolated. Therefore separate alternatives were not necessary to identify associated impacts of those proposals.

ALTERNATIVE 1: NO PARK MASTER PLAN

A "no project" alternative is required by CEQA as part of the EIR, to discuss the existing conditions, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.

No Park Master Plan would eliminate from consideration the proposed actions identified in Tables 1-8 of Section II, Projection Description, that are designated as “C” (analyzed at a project-level of detail) or “D” (analyzed at a program-level). Actions that are determined to be exempt from environmental review or those that have already had environmental review would not be affected.

Under the No Project Alternative, objectives and policies of the Park Master Plan would not be met, including the following:

- Intersection paving reduction and road closure would not be implemented and about 52,000 square feet of paved area would not be returned to parkland.
- Buildings would not be demolished, or expanded for a net change of 7,700 square feet (not counting the demolition of the Richmond-sunset treatment plant that has already occured).
- The log storage area (.08 acre) would remain where it is visible from JFK Drive and intrudes on the Bison area.
- The western end of the Park would remain unchanged and would not include entry improvements visually integrated with the Park.

Under the no project alternative, potential environmental effects would occur in the following:

TRANSPORTATION

None of the proposed transportation improvements would occur without the proposed Master Plan.

As part of the transportation analysis, all 25 study intersections were evaluated for year 2005 weekday peak hour and Sunday peak hour traffic operations considering an annual compound growth rate of one percent, consistent with historic traffic growth in the study area. The evaluation considered “base” conditions, i.e., year 2005 conditions assuming no projects from the Park Master Plan are implemented.

- By the year 2005, increased traffic will substantially worsen the operation of three signalized intersections during the weekday peak period. The Stanyan Street/Fulton Street intersection currently operating at LOS E and the 19th Avenue-Crossover Drive/Lincoln Avenue intersection currently operating at LOS D will degrade to LOS F with motorists experiencing 76 and 73 seconds of average delay, respectively. The Crossover Drive/MLK Jr. Blvd. intersection will degrade from LOS C to LOS E conditions.

  (Note that expected traffic growth and the provision of planned southbound to eastbound left-turn lane and turn arrow at the Stanyan Street/Kezar Drive intersection (to be implemented independently of the Park Master Plan) will increase the average motorist delay at this intersection from 18 to 38 seconds per vehicle and degrade the intersection from LOS C to LOS D during the weekday peak hour.)
- On Sundays, only the Stanyan Street/Fulton Street intersection will operate substantially worse over the next ten years. This intersection, now at LOS E, will operate at LOS F with average delays increasing to 64 seconds.

- By the year 2005, one more stop controlled movement (in addition to the five movements currently most congested) will operate with severe congestion during the weekday peak hour: the westbound left-turn at Great Highway/JFK Drive.

NOISE

- Construction related noise under the no-project alternative would not occur from lakes reconstruction or construction of the underground reservoir. Routine maintenance activities would continue in the Park. Traffic noise would not change under the No Project Alternative.

AIR QUALITY

- No differences in mobile emissions between the proposed project and the no-project would occur. No potential increase in PM_{10} would occur without construction of the underground reservoir or lakes reconstruction projects.

UTILITIES

- The existing infrastructure (pipes, electric fixtures) would continue to deteriorate and would be replaced on an as-needed basis as part of routine Park maintenance.

BIOLOGY/WETLANDS

- Park lakes and surrounding habitat would continue to degrade without the lakes reconstruction, threatening habitat for existing wildlife and plants. This would be a potentially significant impact.

GEOLOGY AND TOPOGRAPHY

- No change from proposed project.

WATER, SEWER AND DRAINAGE

The following impacts would occur if the project is not implemented:

- Park lakes would continue to leak at an estimated 560,000 gallons per day (gpd). (Elk Glen Lake, Middle Lake and North Lake represent about 77 percent, or 428,106 gpd.)

- The Park would continue to use an estimated 300,000 gpd of City water for irrigation, rather than convert to recycled water. This would be inconsistent with the City's Groundwater Master Plan.

- Sewer pipes and irrigation systems would continue to leak and potentially contaminate groundwater unless replaced on an as-needed basis.

HAZARDS

- No change from proposed project for regulated hazards cleanup.

CULTURAL RESOURCES

- The Millwright's House would remain as a private residence or would be unoccupied, eliminating the potential significant impact of proposed demolition, but continuing non-recreation park use.
- The Conservatory, Murphy (South) Windmill, and Kezar Pavilion would not be rehabilitated and would not be usable by Park visitors. Continued deterioration of these historic resources would be significant if it led to loss of the resource.

ALTERNATIVE 2 - MORE ROAD CLOSURES

The following circulation element actions were not a part of the Draft Golden Gate Park Master Plan, but are examined as an alternative. Based on initial analysis, the following alternative was found to generate potential impacts warranting further more detailed environmental review and analysis of possible mitigation measures if the alternative is to be pursued.

PERMANENT JFK DRIVE CLOSURE: SCENARIO 5

This section provides an analysis of an alternative circulation plan which was not included as part of the *Draft Master Plan*, but was later proposed as an option by the Director of the Recreation and Park Department. This alternative circulation plan, entitled "Scenario 5" within this EIR, includes the following major concepts: permanent closure of JFK Drive and its abutting roadways (similar to existing Sunday operations), conversion of Waller Street to a metered parking lot, restriping a segment of Fulton Street to allow angled parking and parking meters, installation of parking meters along Kezar Drive, and improvements to the Stanyan Street/Fulton Street intersection. Scenario 5 also includes many of the transportation improvements proposed in the *Draft Master Plan*.

Note that the following transportation analysis identifies potentially significant impacts associated with Scenario 5. Potential variations of this alternative are identified in the "Final Transportation Study for the Golden Gate Park EIR", December 1996. The variations could change or reduce impacts in some locations and cause impacts elsewhere. The variations have not been studied in detail. If Scenario 5 were to be pursued for adoption, further environmental review would be required, including analysis of the associated mitigation measures, and the impacts and mitigation measures of various options.

Circulation Plan

As shown in Figure 32, Scenario 5's circulation plan includes most of the transportation improvements proposed in the *Draft Master Plan's* Circulation Action Plan, plus:

- Permanent closure of JFK Drive, between Kezar Drive and Transverse Drive, and the following abutting roadway segments to motorized traffic and parking, consistent with current Sunday and holiday operations:
    - Conservatory Drive
    - Arguello Boulevard between Fulton Street and Conservatory Drive
    - 8th Avenue between Fulton Street and JFK Drive, except for MUNI buses and de Young Museum parking permit holders
    - Tea Garden Drive (entrance) south of JFK Drive, except for MUNI buses (however, the concourse would remain open with access via MLK Jr. Drive)
    - 10th Avenue between Fulton Street and JFK Drive
    - Bowling Green Drive between JFK Drive and Middle Drive East
    - Stow Lake Drive (segment) south of JFK Drive

  All closures would be enforced with moveable barriers allowing maintenance vehicle and emergency vehicle access. It is assumed that the barriers at 8th Avenue and the Tea Garden Drive entrance would be tended by Park Rangers (as they currently are on Sundays) or automated equipment would be installed.

- Conversion of Waller Street, between Stanyan Street and Kezar Drive, from a four-lane through traffic street to a parking area. Waller Street's existing intersection with Kezar Drive would be eliminated and access to the parking area would be via Stanyan Street. A bicycle path would also be constructed parallel to Waller Street. The parking area would be delineated to allow two travel lanes and about 96 "straight-on" (90-degree) parking spaces, replacing the existing 42 unrestricted parallel parking spaces. Parking meters allowing a maximum parking time of three hours would be installed. The parking meters would be effective seven days a week.

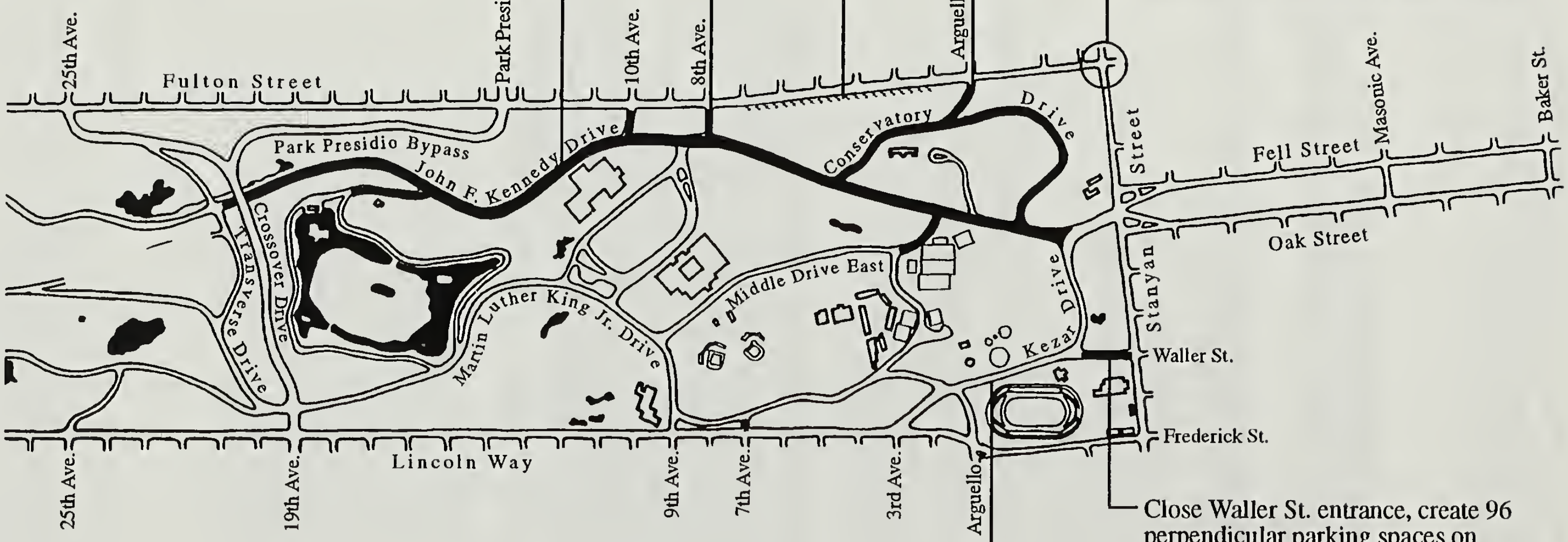
Close 8th Ave. entrance except for MUNI buses and de Young permit parking holders

Create 93 angle (45°) parking spaces on south side of Fulton St. between 2nd Ave. and 7th Ave. with 4-hour meters (approx. 37 new spaces)

Close JFK Drive from Kezar Drive to Transverse Drive, including all entrances

Close Conservatory Drive and Arguello entrance

Improve Stanyan/Fulton intersection



Close Waller St. entrance, create 96 perpendicular parking spaces on Waller St. with 3-hour meters (approx. 54 new spaces)

Install 3-hour parking meters on Kezar Drive between Waller St. and Lincoln Way

Note:

Scenario 5 includes actions shown on this map and all actions shown in Figures 5 and 6, except:

- Closure of Sunset Blvd. north of Lincoln Way
- Prohibition of eastbound left turns at MLK Drive at Crossover Drive
- Creation of "T" intersection at Kezar Drive/JFK Drive (Scenario 5 includes limited pedestrian/bicycle access improvements)
- Use of Waller St. as skating area and special event parking
- Installation of landscape extensions along JFK Drive

Figure 32

JFK Dr. Permanent Road Closure Circulation Plan Scenario 5

Restriping the traffic lanes on Fulton Street between 2nd and 7th Avenues to provide about 93 angled (45-degree) parking spaces on the south side of Fulton Street. Four-hour parking meters, effective seven days a week, would accommodate the new parking spaces. The new parking spaces would replace approximately 56 existing, unrestricted parallel parking spaces. To enable this improvement, the existing painted median buffer area on Fulton Street would be removed and traffic lane widths would be reduced. In addition, the southern curb along Fulton Street would be moved 3-feet to the south, narrowing the existing sidewalk from 10-feet to 7-feet.

- Installation of three-hour parking meters along both sides of Kezar Drive between Waller Street and Lincoln Way. Approximately 142 existing unrestricted parking spaces would be metered seven days a week.
- Improving the Stanyan Street/Fulton Street intersection to accommodate two northbound to westbound left-turn lanes and eliminating the southbound to eastbound left-turn movement. In conjunction with this improvement, the existing MUNI bus stop on the north side of Fulton Street west of Stanyan Street would be moved westerly so the dual left-turn movements would be uninterrupted by a stopped bus.

Scenario 5 does not include the following transportation improvements proposed in the *Draft Master Plan's* Circulation Action Plan:

- Closure of Sunset Boulevard north of Lincoln Way
- Prohibition of eastbound to northbound left-turns at MLK Jr. Boulevard/Crossover Drive
- Use of Waller Street for skating and special event parking
- Installation of landscape extensions along JFK Drive

Traffic Impacts

The proposed roadway closures, traffic calming measures, intersection improvements and parking restrictions proposed as part of Scenario 5 would cause the following traffic impacts (a more detailed discussion of existing traffic and parking conditions related to this scenario is provided in the "Final Transportation Study for the Golden Gate Park Master Plan EIR", December 1996, available for review at the Planning Department in the case file).

JFK Drive and Abutting Roadways: The permanent weekday closure of JFK Drive, between Kezar Drive and Transverse Drive, and its abutting roadway segments would significantly impact the following intersections:

- 19th Avenue-Crossover Drive/Lincoln Way: This signalized intersection's p.m. peak hour performance would degrade from LOS D (35 seconds average delay) to LOS E (47 seconds) upon closure of JFK Drive, using 1995 traffic volumes. About 300 vehicles, which currently use Park roadways, would shift to southbound Crossover Drive and westbound Lincoln Way to cause the degradation.

- Stanyan Street/Fell Street: The stop sign-controlled westbound right-turn movement would deteriorate from LOS B to LOS F under both year 1995 and year 2005 weekday p.m. peak hour conditions. Right-turn delays would exceed 90 seconds per vehicle, encouraging some motorists to avoid the intersection and travel along other north-south streets (Ashbury, Clayton, Cole or Shrader Streets) to reach Fulton Avenue. Using 1995 volumes, a right-turn increase of up to 470 vehicles would be expected. An increase of over 500 vehicles would be expected by the year 2005.

- Park Presidio Boulevard/Fulton Street: In 1995, intersection operations would change to LOS D, which is still considered an acceptable LOS. By the year 2005, diverted vehicle-trips would re-route to all four of this signalized intersection's approaches, increasing the overall number of movements within this intersection by over 1,300 vehicles. This would cause the intersection's p.m. peak hour performance to degrade from LOS C (17 seconds average delay) to LOS F (63 seconds), resulting in vehicles re-routing to Funston Avenue, 14th Avenue, Cabrillo Street and Balboa Street.

- Stanyan Street/Kezar Drive: In 1995, the intersection would operate at LOS C with Scenario 5. By the year 2005, this signalized intersection's p.m. peak hour performance would degrade from LOS D (38 seconds average delay) to LOS E (43 seconds) assuming three westbound through lanes continue through the intersection. If only two westbound through lanes continued through the intersection to westbound Kezar Drive, the intersection would operate at LOS F (the intersection would also operate at LOS F with an "all-bicycle" signal phase and three westbound through lanes). It was assumed the third through lane would merge back into the second through lane before Kezar Drive's curve near JFK Drive. Under Scenario 5, over 500 vehicles would re-route to westbound Kezar Drive and over 350 vehicles would re-route to eastbound Kezar Drive.

JFK Drive's permanent weekday closure would degrade the following intersection:

- Crossover Drive/MLK Drive: In the year 2005, this signalized intersection is expected to operate at LOS E (42 seconds average delay) under background conditions. Under Scenario 5, the intersection would remain at LOS E, but average delays would increase by 14 seconds (to 58 seconds). This would be primarily due to re-routed vehicle-trips traveling southerly through the intersection as well as an increase in east-west traffic volumes. Overall, almost 950 re-routed trips would travel through this intersection.

A Saturday closure of JFK Drive would significantly impact the following intersection:

- Crossover Drive/MLK Drive: By the year 2005, this signalized intersection's Saturday peak hour performance would degrade from LOS D (32 seconds average delay) to LOS E (47 seconds) upon closure of JFK Drive. This would be primarily due to re-routed vehicle-trips traveling southerly through the intersection as well as an increase in east-west traffic volumes. Overall, over 800 re-routed trips would travel through this intersection.

JFK Drive's permanent Saturday closure would further degrade the following intersection:

- 19th Avenue-Crossover Drive/Lincoln Way: During the Saturday peak hour this signalized intersection currently operates at LOS F (73 seconds of delay) and by the year 2005 delays are expected to increase (134 seconds) under background conditions. Upon closure of JFK Drive, LOS F conditions would continue to prevail in both 1995 and 2005, but delays would increase by 21 to 34 seconds (to 94 seconds and 168 seconds, respectively).

The permanent closure of JFK Drive, between Kezar Drive and Transverse Drive, and its abutting roadway segments would shift between 800 and 1,200 two-way vehicle-trips to Fulton Street between Stanyan Street and Park Presidio Boulevard during the weekday p.m. peak hour. Almost 700 vehicle-trips would be diverted to Fulton Street between Park Presidio Boulevard and 25th Avenue. Very little traffic would divert west of 25th Avenue.

During the Saturday peak hour, between 500 and 700 two-way vehicle-trips would be added to Fulton Street between Stanyan Street and Park Presidio Boulevard. Over 400 vehicle-trips would be diverted to Fulton Street between Park Presidio Boulevard and 25th Avenue. Very little traffic would divert west of 25th Avenue.

To accommodate this added traffic and retain vehicle "progression" (i.e., facilitating traffic movements through coordinated traffic signal timings) along Fulton Street, more "green" time would need to be added to Fulton Street's east-west movements at the expense of the north-south cross-street movements. With the additional traffic on Fulton Street and the extra "green" time added to serve these vehicles, fewer safe gaps for north-south vehicular and pedestrian crossings would be available at Fulton Street's unsignalized intersections between Stanyan Street and 25th Avenue. Crossings from unsignalized intersections across Fulton Street could become more difficult and unsafe.

The permanent closure of JFK Drive would also shift between 220 and 270 two-way vehicle-trips to Fulton Street between Stanyan Street and Masonic Avenue during both the weekday and Saturday peak hours. It would also increase two-way traffic levels on Masonic Avenue between Fulton and Fell Street by about 120 vehicles during both periods. However, these increases would only nominally affect intersections along Masonic Avenue.

The permanent closure of JFK Drive would cause an eastbound bottleneck along Kezar Drive where the roadway currently merges to one lane. Kezar Drive currently has two eastbound through lanes, except between Waller Street and just east of the historic Lake Alvord Bridge, where the roadway narrows to one eastbound through lane (Kezar Drive has two westbound through lanes throughout). During both the weekday and Saturday peak periods, just over 1,200 eastbound vehicles travel through the single eastbound lane. Upon observation and based on typical arterial roadway capacities of about 1,200 vehicles per hour per lane, it appears the roadway segment is operating near or at capacity during these periods and it is unlikely many more vehicles could be served within the single lane. However, under Scenario 5, an additional 300 to 330 vehicles would be added during weekday and Saturday peak periods (it should be noted that about one-quarter of these new trips would result due to the proposed closure of Waller Street). These added vehicles would create congested conditions in the eastbound direction and cause a back-up extending to Lincoln Way.

The closure of JFK Drive, its abutting roadways, and Waller Street would result in an increase in traffic levels along all open east Park roadways, especially MLK Jr. Drive between Kezar Drive and Crossover Drive. The traffic increases, particularly between the Concourse and Crossover Drive, would often result in bumper-to-bumper traffic along MLK Jr. Drive during the Saturday peak hour (similar to conditions during peak periods on Sundays). The only entrance to and exit from the Concourse would be via MLK Jr. Drive.

The permanent closure of JFK Drive would sever the current routing of the 49 Mile Scenic Drive.

No emergency access impacts to/from JFK Drive and its abutting roadways are foreseen as it is assumed the barriers placed at each of the proposed roadway closure points would be passable for emergency vehicles. Under Scenario 5, emergency vehicles accessing JFK Drive would no longer be impeded by motorized traffic, but to an extent by an increased number of pedestrians, bicyclists, roller skaters, etc. However, the increased Saturday congestion along MLK Jr. Drive and other open Park roadways could reduce emergency vehicle response times within the southeastern area of the Park.

Waller Street: The permanent weekday and Saturday closure of Waller Street, between Stanyan Street and Kezar Drive, would contribute to the eastbound bottleneck expected along Kezar Drive and increased traffic levels on MLK Drive within the Park (as previously discussed) and would affect the 3rd Avenue/Lincoln Way intersection:

- 3rd Avenue/Lincoln Way: Currently, the stop sign-controlled northbound left-turn movement at this intersection serves about 210 vehicles during the weekday peak hour and about 150 vehicles during the Saturday peak hour. Although these movements currently operate at LOS F, their associated delays likely do not warrant installation of a traffic signal. Under Scenario 5, however, about 120 additional vehicles would be added during the weekday peak and over 160 additional vehicles would be added during the Saturday peak hour. Larger increases would be expected by the year 2005. These additional left-turns would exacerbate the delays at this intersection and could warrant installation of a traffic signal.

Waller Street's closure would also divert from 400 to 500 additional vehicles per hour to Stanyan Street between Kezar Drive and Frederick Street. An unsignalized crosswalk across Stanyan Street (at Beulah Street) provides pedestrian access to the Kezar Pavillion. The crosswalk is delineated by two white stripes only -- no advance warning signing is provided. The crosswalk is heavily used by children when the Pavillion has special recreation programs. Without improved delineation, an increase in potential pedestrian/auto conflicts could arise near the crosswalk as traffic volumes increase.

Middle Drive West, Music Concourse Roadway, and 47th Avenue: These roadways would be impacted to the same degree under all scenarios, including Scenario 5. See Scenarios 1 and 2 on p. 216.

Tea Garden Drive: Tea Garden Drive would be impacted under all scenarios, including Scenario 5. See also, Scenarios 1 and 2 in Chapter IV.C.

Stanyan Street/Fulton Street: Scenario 5 proposes improving the Stanyan Street/Fulton Street signalized intersection by adding a second northbound to westbound left-turn lane and eliminating the southbound to eastbound left-turn movement (during weekday and Saturday peak hours less than 20 vehicles make this latter movement). In association with these improvements, the existing MUNI bus stop on the north side of Fulton Street west of Stanyan Street would be moved westerly so the dual northbound to westbound left-turn movements would be uninterrupted by a stopped bus.

Under Scenario 5 and during the weekday peak hour, up to 500 additional vehicles would re-route and turn left (westbound) onto Fulton Street from northbound Stanyan Street. During the Saturday peak period, over 200 additional vehicles would turn left. Eastbound right-turns would increase by 200 to 250 vehicles during both peak periods. During both periods, the intersection's eastbound and westbound through movements would also increase, but by lesser amounts of vehicles.

Detailed level of service analysis determined that the most efficient lane configuration for the northbound approach to the Stanyan Street/Fulton Street intersection would consist of one exclusive left-turn lane, one shared left-turn/through lane, and one shared through/right-turn lane (the shared left-turn/through and shared through/right-turn lanes would require on-street parking removal, as discussed later in "Parking Impacts"). The southbound approach would consist of one through lane and one shared through/right-turn lane (the shared through/right-turn lane would require on-street parking removal, as discussed later in "Parking Impacts"). The southbound left-turn movement would be prohibited. The existing lane configuration on the eastern and western approaches would remain in place.

With the re-routed traffic added from Scenario 5's proposals and the lane changes discussed above, the intersection's performance would improve compared to existing conditions. Considering 1995 weekday peak hour conditions, the intersection would improve from LOS E to LOS D (LOS F to LOS E in 2005). During 1995 Saturday peak hour conditions, the intersection would improve from LOS E to LOS C (LOS F to LOS D in 2005).

However, the additional eastbound right-turn traffic increase of 200 to 250 vehicles per hour could not be accommodated within the single southbound traffic lane along Stanyan Street to the south of the intersection. The existing southbound single lane currently accommodates about 800 vehicles per hour and operates at near-capacity conditions during the weekday and Saturday peak hours due to downstream intersection constraints. Without provision of a second southbound traffic lane extending to Kezar Drive, traffic would back-up into the Stanyan Street/Fulton Street intersection, potentially causing grid-locked conditions. It should be noted that most of the additional traffic expected would be en route to westbound Kezar Drive.

Parking Limits in East Park: The commuter parking restrictions proposed in all scenarios would slightly reduce the number of commuter vehicles traveling along several roadways in the eastern area of the Park, but would likely increase turning movements at intersections outside of the Park as commuters search for other available on-street parking spaces. It is difficult to predict which intersections may be affected and to what extent the intersections may be affected. See "Parking Impacts" on p. 219 for a discussion on how the parking limits could impact parking along streets in adjacent neighborhoods.

Parking Maneuvers Along Fulton Street: Scenario 5 proposes restriping the traffic lanes on Fulton Street between 2nd and 7th Avenues to provide about 93 angled (45-degree) metered parking spaces on the south side of Fulton Street. The existing 100-foot cross-section of Fulton Street, from north to south, consists of: a 22-foot sidewalk, a 20-foot lane used for parallel parking and a westbound traffic lane, a 12-foot westbound traffic lane, a 4-foot at-grade median refuge area, a 12-foot eastbound traffic lane, a 20-foot lane used for an eastbound traffic lane and parallel parking, and a 10-foot sidewalk. Under Scenario 5, the southern curb would be moved southerly 3-feet to provide, from north to south: a 22-foot sidewalk, a 19-foot lane used for parallel parking and a westbound traffic lane, an 11-foot westbound traffic lane, no center refuge area, an 11-foot wide eastbound lane, a 30-foot eastbound lane used for an eastbound traffic lane and 45-degree parking, and a 7-foot sidewalk. In other words, the northern 3-feet of the southern sidewalk would be removed.

Research shows that angled on-street parking has the highest incidence of accidents of all types of on-street parking. Studies have shown increases of 19 to 63 percent in annual accident rates when angled on-street parking has been installed. Thus, angled on-street parking is usually only considered when the street carries primarily local traffic, usually indicated by low volumes and operating speeds of 15 to 20 mph (Fulton Street's travel speeds are near 30 mph and the street would carry increased through traffic volumes under Scenario 5); and the street is not a major through-route (Fulton Street is classified as a major arterial).[2]

Parking Maneuvers Along Kezar Drive: Provision of three-hour parking meters along both sides of Kezar Drive would increase the frequency of parallel parking maneuvers since almost all of the vehicles that currently park along Kezar Drive park long-term. An increase in parallel parking maneuvers coupled with an increase in through traffic volumes could increase congestion and the number of rear-end collisions along Kezar Drive.

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[2] Institute of Transportation Engineers and National Main Street Center, "The Parking Handbook", 1994.

Transit Impacts

As previously discussed in Chapter IV, "Transit Impacts", the transit system would be impacted by some of the proposed traffic calming measures, commuter parking restrictions, and building and structure improvements. Under Scenario 5, transit operations could also be impacted by traffic diverted to Stanyan Street, the proposed changes at Stanyan Street/Fulton Street, and by the proposed parking changes along the south side of Fulton Street. Finally, a slight increase in transit use would be expected as parking opportunities are restricted as a result of Scenario 5 improvements.

JFK Drive and Abutting Roadways: The permanent closure of JFK Drive and its abutting roadways would re-route about 800 two-way vehicle-trips to Stanyan Street (a Secondary Transit Street according to the City's General Plan) between Fulton Street and Kezar Drive during the weekday p.m. peak hour. During this period, the two travel lanes in each direction would alleviate congestion. However, almost 500 two-way trips would be added during the Saturday peak hour and only one southbound travel lane is in use during this period. Severe congestion would result for all southbound vehicles, including MUNI buses.

Stanyan Street/Fulton Street: Under Scenario 5, the MUNI bus stop on the north side of Fulton Street and west of Stanyan Street would be located westerly so the new outside northbound-to-westbound left-turn lane flows freely without interruption caused by a stopped bus. The overhead trolley wires are aligned with the existing left-turn lane and may need to be realigned over the proposed new turning lane to enable bus movements.

Parking Maneuvers Along Fulton Street: Fulton Street is designated as a Secondary Transit Street in the City's General Plan. Due to the interference that would be caused by vehicles backing out of the proposed 45-degree metered parking spaces on the south side of Fulton Street (see "Traffic Impacts"), eastbound MUNI buses would be impacted. Angled parking also makes it difficult for MUNI buses to reach the curb to serve bus stops, especially in the case of wheelchair access. For example, trolley coaches can only operate 12 feet to either side of their overhead wires. Lastly, MUNI buses travel in the outside lane and would be susceptible to increased delay and safety concerns similar to those discussed previously on p. 218.

Parking Impacts

Table 45 summarizes Scenario 5's parking impacts for vehicles parked long-term northeast of the Park, north of Fulton Street and, southeast of the Park. It also summarizes parking impacts for vehicles parked short-term within the Park.

Parking Impacts Northeast of the Park: Accounting for available long-term, non-restricted parking and on-street spaces northeast of the Park (i.e., the area bounded by 4th Avenue, and Shrader, Fell, Stanyan and Fulton Streets), over 40 parked vehicles displaced by Scenario 5 improvements would not be accommodated on neighborhood streets during weekdays. On Saturdays, all displaced vehicles would be accommodated. On Sundays, over 10 parked vehicles would not be accommodated. On all days, finding an available parking space would be a challenge.

Parking North of Fulton Street: On weekdays and Saturdays, all of the parked vehicles displaced due to parking meters on Fulton Street would be accommodated within two blocks of the proposed metering area. On Sundays, about 16 vehicles could not be accommodated within two blocks.

Parking Impacts Southeast of the Park: Accounting for available long-term, non-restricted parking spaces southeast of the Park (i.e., the area bounded by 12th and Lincoln Avenues and Frederick, Stanyan, Oak, Cole and Judah Streets), about 370 parked vehicles displaced by parking restrictions and meters in the Park would not be accommodated on neighborhood streets during weekdays. On Saturdays and Sundays, between 90 and 120 parked vehicles would not be accommodated.

Parking Within the Park: Considering the existing parking spaces available along those East Park roadways proposed to remain open under Scenario 5, plus the “new” short-term parking spaces available due to provision of long-term parking restrictions and meters, all of the Park visitor's vehicles displaced by the closure of JFK Drive and its abutting roadways could be accommodated along other East Park roadways, Kezar Drive, Waller Street and the metered portion of Fulton Street. After accommodating the Park's displaced vehicles, over 800 short-term parking spaces would still be available along open East Park roadways on weekdays (compared to 1,050 currently), but only about 240 short-term parking spaces would be available on Saturdays (compared to 725 currently). A two-thirds reduction in the number of available parking spaces on Saturdays would contribute to traffic congestion throughout East Park, as previously discussed on p. 219. In addition, there would be low availability of parking spaces near the major attractions. On Sundays, 540 short-term parking spaces would be available along open East Park roadways.

Table 45: Scenario 5 Parking Impacts

Long-Term Parking Spaces	Weekday Spaces	Saturday Spaces	Sunday Spaces
Northeast of Park (near Stanyan/Fulton):			
Existing unoccupied on-street parking spaces NE of Park	81	95	39
Minus: Parking spaces lost from Stanyan/Fulton improvements	-45	-37	-44
Minus: Parking spaces lost from Stanyan/Fell improvements	-7	-7	-7
Minus: Parking spaces displaced from roadway closures	-71	-25	0
Maximum available on-street parking spaces NE of Park	**-42**	**26**	**-12**
North of Fulton Avenue (between Arguello and 8th):			
Existing unoccupied on-street parking spaces north of Fulton	113	61	30
Minus: Parking spaces displaced by Fulton meters	-32	-30	-46
Maximum available on-street parking spaces north of Fulton	**81**	**31**	**-16**
Southeast of Park (between Cole and 12th):			
Existing unoccupied on-street parking spaces SE of Park	68	163	135
Minus: Parking spaces displaced from Kezar meters	-142	-113	-113
Minus: Parking spaces displaced from Waller meters	-42	-41	-41
Minus: Long-term parking restrictions in SE area of Park	-254	-100	-100
Maximum available on-street parking spaces SE of Park	**-370**	**-91**	**-119**

Short-Term Parking Spaces	Weekday Spaces	Saturday Spaces	Sunday Spaces
Within Park and on Fulton, Kezar and Waller:			
Existing unoccupied on-street parking along "open" East Park road	547	347	150
Plus: Long-term parking displaced from Fulton meters	32	30	46
Plus: New parking spaces on Fulton	37	37	37
Plus: Long-term parking displaced from Kezar meters	142	113	113
Plus: Long-term parking displaced from Waller meters	42	41	41
Plus: New parking spaces on Waller	54	54	54
Plus: Long-term parking restrictions in SE area of Park	254	100	100
Minus: Parking spaces displaced from Park roadway closures	-304	-479	0
Minimum available on-street parking in East Park	**804**	**243**	**541**

Pedestrian, Bicyclist and Disabled Person Impacts

Pedestrians and bicyclists would benefit as a result of most of the Scenario 5 proposed improvements. However, mobility-impaired people would be impacted, as discussed below.

JFK Drive and Abutting Roadways: With the permanent closure of JFK and its abutting roadway segments, mobility-impaired people who access the Park via private motorized vehicles to visit attractions adjacent to the closed roadways (or to use JFK Drive itself) would be challenged to find a parking space close enough to their destination (e.g., the Conservatory, Academy of Sciences, de Young Museum, Asian Art Museum, etc.) since fewer on-street parking spaces would be available on the remaining roadways within the Park. In addition, many existing pathways parallel to Park roadways south of JFK Drive are not ADA-compliable (i.e., many pathways are discontinuous, unaccommodating to wheelchairs, unpaved, etc.). Under the *Draft Master Plan*, however, pathways along Bowling Green Drive, Middle Drive East, Academy Drive, Tea Garden Drive and Stow Lake Drive West would eventually be brought into compliance with the ADA. In the meantime, however, it is likely that fewer mobility-impaired people who typically access the Park by private vehicle would visit the attractions near JFK Drive.

With the closure of JFK Drive, all visitors to the Conservatory and other nearby attractions would be required to arrive by their own power, i.e., by foot, bicycle, wheelchair, etc.

The permanent closure of JFK Drive would force enough automobile traffic onto eastbound Kezar Drive to warrant a second traffic lane on the historic Lake Alvord Bridge (see “Traffic Impacts”). Currently, the bridge accommodates two westbound traffic lanes, one eastbound traffic lane and bicycle paths on both sides of the bridge. The addition of a second eastbound traffic lane would displace the existing bicycle path on the south side of the bridge. (The Lake Alvord Bridge, a National Historic Civil Engineering Landmark, is not proposed for widening.) Widening the bridge could constitute a significant environmental impact if it substantially compromised the historic fabric or character of the structure.

Tea Garden Drive: Tea Garden Drive could be impacted under all scenarios, including Scenario 5. See Scenarios 1 and 2 on p. 216.

Stanyan Street/Kezar Drive: The traffic operations at this intersection would be significantly impacted with the inclusion of an “all-bicycle” signal phase, as under all scenarios.

Parking Manuevers Along Fulton Street: Potential impacts to bicyclists resulting from angled parking on Fulton Street were discussed previously in “Parking Impacts”.

Kezar Drive Parking Meters: The existing sidewalk on the west side of Kezar Drive is generally only 3-feet wide. If the parking meters were placed on the sidewalk adjacent to each delineated parking space, the effective width of the sidewalk could be reduced to a minimum of 2-feet wide. This is insufficient for wheelchair passage. To meet ADA requirements, an alternative fee collection system would have to be installed.

Multi-Use Path Improvements: Under all scenarios, including Scenario 5, no significant impacts would occur as a result of the multi-use path or pedestrian path upgrades, lengthenings, or connections to existing pathways. Under Scenario 5, Waller Street at Kezar Drive would be closed, enabling reconstruction of a planned uninterrupted bicycle path along the east side of Kezar Drive between Lincoln Way and Stanyan Street. This path would connect to the existing 0.9-mile Panhandle bicycle path and close a gap in the bicycle route network from the Sunset District and the southwest portion of the City to Downtown. With Waller Street closed, the Kezar Drive bicycle path would not have any cross motor vehicle traffic on its entire length from Lincoln Way/3rd Avenue to Stanyan Street, a distance of 0.5-mile.[3]

ALTERNATIVE 3: PRESERVATION OF POTENTIAL HISTORIC PROPERTY

This Altemative recognizes the potential historic value of the Millwright's House, proposed for demolition under the Park Master Plan. Refer to Chapters III.L. (p. 189) and VI.L. (p. 268). This Alternative would avoid the potential significant impact of loss of this structure.

Under this Alternative the Millwright's House would be preserved as a part of the Murphy's (South) Windmill complex. The deteriorated building could be restored and upgraded to meet City Codes for ADA accessibility, electrical and ventilation codes and seismic safety conditions.[4] The Millwright's house is a two story structure with a gabled roof and slate roof tiles. Exterior walls are unreinforced hand laid brick. Two brick chimneys are not braced to the roof structure. The existing structure, built in 1909, has five rooms and no basement. It is about 1,280 sq. ft. per floor for a total of 2,560 sq. ft. (see Figures 33 and 34). Because of its small size and the orientation of the front of the house to the west, the building is not visually prominent from Park roads although it can be seen from MLK Jr. Drive. Though no alternatives for renovation and reuse of this structure are described in the Park Master Plan, potential use of the building could include: a meeting or social space available for public rent; a classroom for Park educational programs; a

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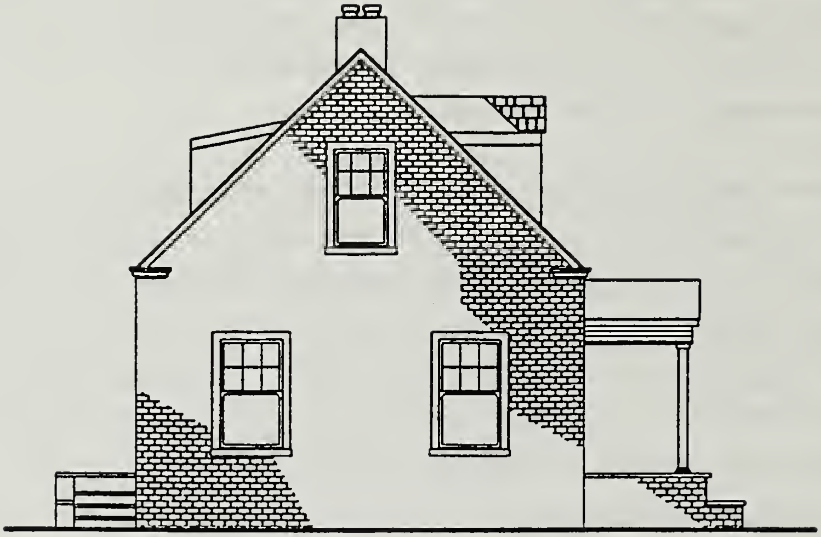
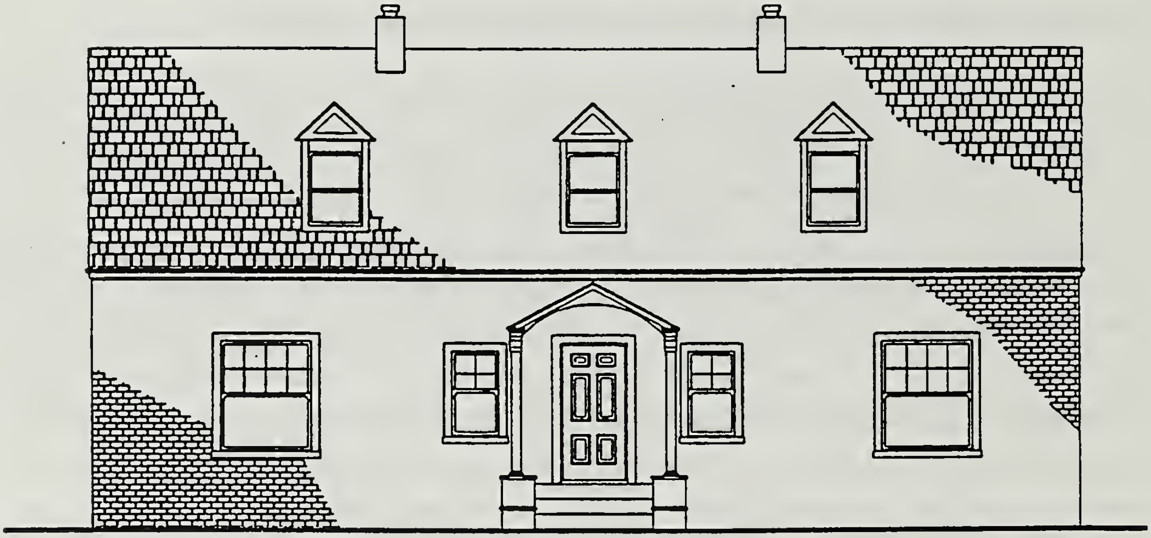
[3] Letter from Peter Tannen (DPT Bicycle Program) to Alice Glasner (Planning Department), dated August 23, 1996.

[4] McClusky and Associates Architects, letter to Recreation and Park Department, dated May 17, 1995.



ELEVATION



ELEVATION

Figure 33
Millwright's House Elevations

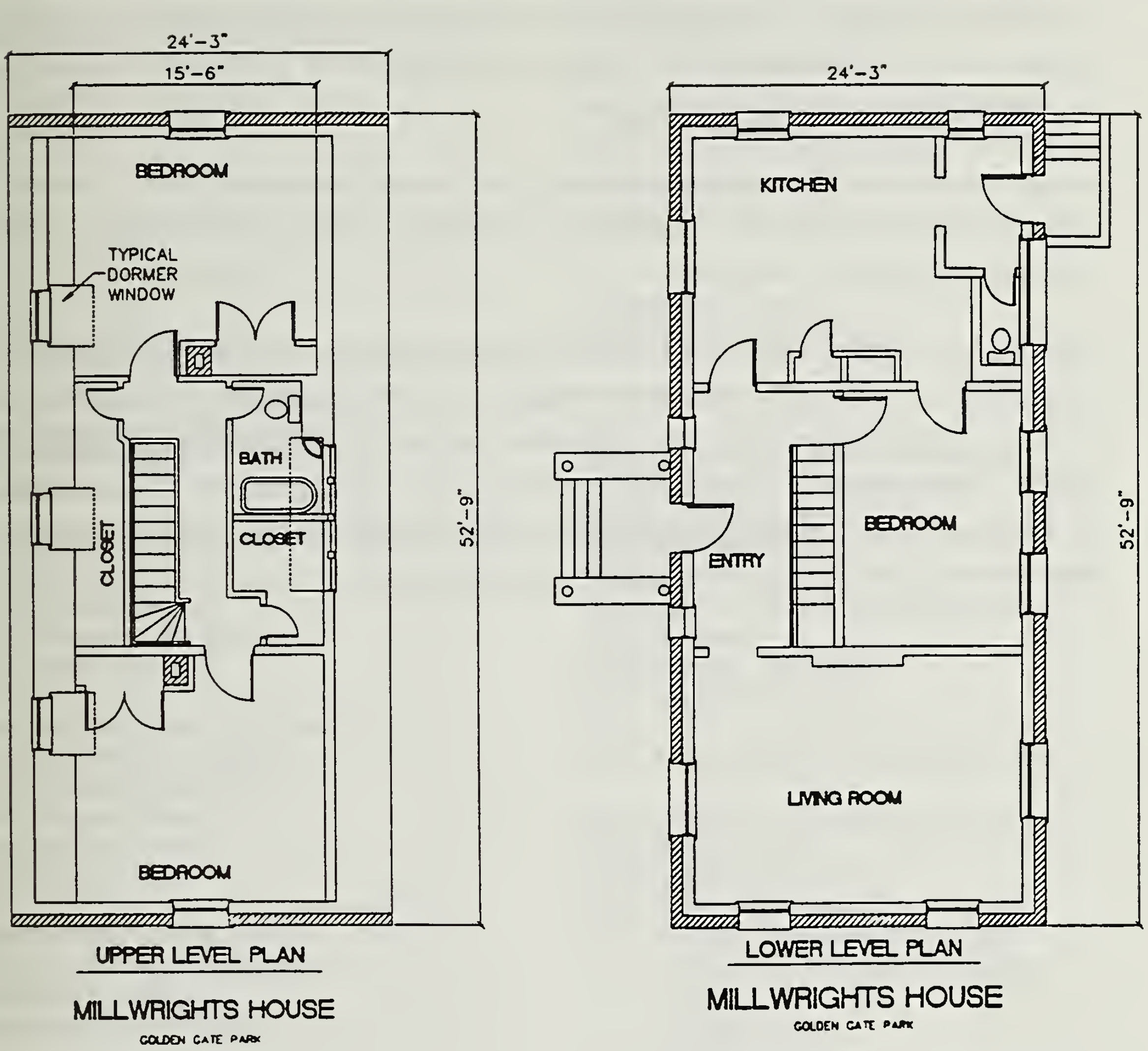


Figure 34
Millwright's House Plan View

Park museum or other Park use activities. Continued use as a private residence is non-conforming with Park policies.

Historic buildings must generally comply with Federal accessibility requirements in the same way as non-historic buildings. The Millwright's House has numerous local and federal access code deficiencies as would be anticipated with any property of this vintage. At the heart of building accessibility is primary access to the building.

Access to the existing ground floor level of the building from the sidewalk is by stairs. Providing access to the building is of first and primary importance when considering accommodation for the disabled.

Since historic structures widely vary in levels of original accessibility, many decisions regarding accessibility are discretionary. If found to be Eligible for the National Register or designated as a Structure of Merit or other local historic designation, the State Historic Building Code could be utilized. If strict adherence to the San Francisco Building Code would impact the historic fabric of the structure, the San Francisco Department of Building Inspection has the discretion under the State Historic Building Code to allow alternate mean of compliance.

IX. DRAFT EIR DISTRIBUTION LIST

FEDERAL AND STATE AGENCIES

Northwest Information Center
California Archaeological Inventory
Department of Anthropology
Sonoma State University
Rohnert Park, CA 94928
Attn: Christian Gerike

California Department of Transportation
Transportation Planning
P.O. Box 23660
Oakland, CA 94623-0660
Attn: Gary Adams

California Coastal Commission
631 Howard Street
San Francisco, CA 94105

S.F. Bay Conservation and Development Commission
30 Van Ness Avenue
San Francisco, CA 94102
Attn: Steve McAdam

California Regional Water Quality Control Board (RWQCB)
San Francisco Bay Region
2101 Webster Street
Oakland, CA 94612
Attn: Steven Hill

U.S. Fish and Wildlife Service
Sacramento Field Office (ES)
2800 Cottage Way
Sacramento, CA 95825

Dept. of Army SF District
Corps of Engineers
211 Main Street
San Francisco, CA 94105-1905
Attn: Rob Lawrence, Dist. Engineer

State Office of Intergovernmental Management (10)
State Clearinghouse
1400 - Tenth Street
Sacramento, CA 95814

California Coastal Conservancy
1330 Broadway, Suite 1100
Oakland, CA 94612
Attn: Marc Beyeler

U.S. National Park Service
Building E Lower Fort Mason
San Francisco, CA 94123
Attn: Mike Bell/Nancy Hornor

California Department of Fish and Game
Marine Research (Coast Work)
411 Burgess Drive
Menlo Park, CA 94025

U.S. Environmental Protection Agency
215 Fremont Street
San Francisco, CA 94105

REGIONAL AGENCIES

Association of Bay Area Governments
P.O. Box 2050
Oakland, CA 94604
Attn: Jean Pederson

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109
Attn: Joseph Steinberger

CITY AND COUNTY OF SAN FRANCISCO

San Francisco City Planning Commission
1660 Mission Street
San Francisco, CA 94103
Attn: Linda Avery, Secretary
Susan E. Lowenberg, President
Hector Chinchilla, Vice President
Beverly Mills
Lawrence Martin
Richard Hills
Dennis A. Antenorer
Cynthia Joe

Recreation and Park Commission
McLaren Lodge, Golden Gate Park
Attn: Eugene Friend, President
Yvette Flunder, Vice President
Elizabeth McArdle-Solomon
William Getty
Rotea Gilford
Vincent Rovetti
Jim Salinas

Recreation & Park Department
McLaren Lodge, Golden Gate Park
Fell and Stanyan Streets
San Francisco, CA 94117
Attn: Joel Robinson, Acting G.M.
Deborah Learner
Joanne Wilson

S.F. Department of Public Works
Division of Streets and Mapping
875 Stevenson Street, Room 465
San Francisco, CA 94103
Attn: Denise Brady

S.F. Department of Parking & Traffic
Traffic Engineering Division
25 Van Ness Avenue
San Francisco, CA 94102
Attn: Mark Rand

San Francisco Fire Department
Division of Planning & Research
260 Golden Gate Avenue
San Francisco, CA 94102
Attn: Howard L. Slater

Public Utilities Commission
1155 Market Street
San Francisco, CA 94102
Attn: Anson B. Moran, G.M.

San Francisco Municipal Railway
MUNI Planning Division
949 Presidio Avenue, Room 204
San Francisco, CA 94115
Attn: Peter Straus

Department of Public Works
Bureau of Water Pollution Control
750 Phelps Street
San Francisco, CA 94124-1091
Attn: James Salerno, Manager

Division of General Engineering Services
30 Van Ness Avenue, 5th Floor
San Francisco, CA 94102
Attn: Kathy Howe

Department of Pubic Works
30 Van Ness Ave., 5th Floor
San Francisco, CA 94102
Attn: Shannon Maloney
Gordon King

Police Department, Planning Division
Hall of Justice
850 Bryant Street
San Francisco, CA 94103
Attn: Lt. James Molinari

LANDMARKS PRESERVATION ADVISORY BOARD
1660 Mission Street
San Francisco, CA 94103
Attn: Mark Paez, Secretary

Department of Building Inspection
1660 Mission Street
San Francisco, CA 94103
Attn: Frank Chiu, Superintendent

Office of Community Development
25 Van Ness Avenue, Suite 700
San Francisco, CA 94102
Attn: Priscilla Watts, Director

Office of Economic Plng. & Dev.
Rm. 416, War Memorial Building
401 Van Ness Ave.
San Francisco, CA 94102
Attn: J. David Heindel

Bureau of Energy Conservation
Hetch Hetchy Water & Power
1155 Market Street, 4th Floor
San Francisco, CA 94103
Attn: John Deakin, Director

Water Department
Distribution Division
425 Mason Street
San Francisco, CA 94102

Groups and Individuals

San Francisco Chamber of Commerce
465 California Street
San Francisco, CA 94104
Attn: Richard Morten

San Francisco Labor Council
660 Howard Street
San Francisco, CA 94105-3104
Attn: Walter Johnson

San Francisco Planning & Urban Research Association
312 Sutter Street
San Francisco, CA 94108

San Francisco Tomorrow
54 Mint Street, Room 400
San Francisco, CA 94103
Attn: Tony Kilroy

Sanger and Olson
1 Embarcadero Center, 12th Floor
San Francisco, CA 94111
Attn: John Sanger, Esq.

Philip DeAndrade
Congresswoman Pelosi's Office
450 Golden Gate Avenue, Ste. 13470
San Francisco, CA 94102

Heritage, SF Architectural
2007 Franklin Street
San Francisco, CA 94103
Attn: David Bahlman, Executive Director
Sue Hestor, Attorney-at-Law
870 Market Street, Room 1121
San Francisco, CA 94102

Mary Anne Miller
SPEAK
1239 42nd Avenue
San Francisco, CA 94122

Fine Arts Museum of San Francisco
233 Post Street
San Francisco, CA 94108
Attn: Debbie Frieden

Jennifer Clary
S.F. Tomorrow
795 25th Street, #3
San Francisco, CA 94121

Paul Sedway
Sedway Cooke Associates
300 Montgomery St., 2nd Floor
San Francisco, CA 94104

S.F. Convention & Visitor's Bureau
201 Third Street, Suite 900
San Francisco, CA 94103
Attn: Dale Hess

San Francisco Beautiful
41 Sutter Street, Suite 709
San Francisco, CA 94104
Attn: Donna Casey

Joel Ventresca
202 Grattan
San Francisco, CA 94117

AIA San Francisco Chapter
130 Sutter Street
San Francisco, CA 94104

Sierra Club
730 Polk Street
San Francisco, CA 94104

California Academy of Sciences
Music Concourse Drive
Golden Gate Park
San Francisco, CA
Attn: Evelyn Handler

de Young Fine Arts Museum
Music Concourse Drive
Golden Gate Park
San Francisco, CA
Attn: Harry Parker

Media

San Francisco Chronicle
925 Mission Street
San Francisco, CA 94103
Attn: Elliot Diringer

San Francisco Examiner
P.O. Box 7260
San Francisco, CA 94120
Attn: Gerald Adams

Libraries

Document Library
City Library - Civic Center
San Francisco, CA 94102
Attn: Kate Wingerson
(2 copies plus one for branch library

Partial List of Those Receiving Mailed Notices of Availability*

* A notice of availability of the Draft EIR was mailed to about 1,500 persons. The mailing list is available for review in the project file 95-243E at the Planning Department, 1660 Mission Street.

Associated Press
1390 Market Street, Suite 318
San Francisco, CA 94102
Attn: Bill Shiffman

San Francisco Bay Guardian
2700 - Nineteenth Street
San Francisco, CA 94110
Attn: Patrick Douglas, City Editor

San Francisco Business Times
325 - 5th Street
San Francisco, CA 94107
Attn: Tim Turner

The Sun Reporter
1366 Turk Street
San Francisco, CA 94115

Tenderloin Times
146 Leavenworth Street
San Francisco, CA 94102
Attn: Rob Waters

Stanford University Libraries
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Stanford, CA 94305

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San Francisco, CA 94132

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San Francisco, CA 94102-4978

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San Francisco, CA 94118
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Baker & McKenzie
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San Francisco, CA 94111

Sunset Action Committee
1501 Lincoln Way, #503
San Francisco, CA 94122
Attn: John Bardis

Barkley & Lee
The Mills Building, Suite 691
220 Montgomery Street
San Francisco, CA 94104
Attn: Alice Suet Yet Barkley

Bay Area Council
200 Pine Street,Suite 300
San Francisco, CA 94104-2702

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637 Divisadero Street
San Francisco, CA 94117
Attn: George Mix, Jr.

BKB Associates
2315 Divisadero Street
San Francisco, CA 94115
Attn: Kermit H. Boston

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120 Howard Street, Suite 440
San Francisco, CA 94105
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Michael Dyett
Blayney-Dyett
70 Zoe Street
San Francisco, CA 94103

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175 Yukon Street
San Francisco, CA 94114
Attn: Mrs. Dorice Murphy

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Architecture & Planning, Inc.
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San Francisco, CA 94104
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235 Montgomery Street
San Francisco, CA 94104
Attn: Sandra Lambert

Finger and Moy Architects
231 Sansome Street, 4th Floor
San Francisco, CA 94104-2304
Attn: Stan Moy

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770 L Street, Suite 960
Sacramento, CA 95814
Attn: Doug Stevens, State Coordinator

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177 Post Street, Penthouse
San Francisco, CA 94108
Attn: Steven L. Vettel

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550 Kearny Street
San Francisco, CA 94103
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One Montgomery Street
West Tower, 23rd Floor
San Francisco, CA 94104
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San Francisco, CA 94105

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1308 Montgomery St., #2
San Francisco, CA 94131

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Munsell Brown
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San Francisco, CA 94111

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San Francisco, CA 94111
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San Francisco, CA 94111
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San Francisco, CA 94104

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970 Chestnut Street, #3
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San Francisco, CA 94103

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420 Sutter Street
San Francisco, CA 94108
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345 California Street
San Francisco, CA 94104
Attn: Jacob Herber

National Lawyers Guild
558 Capp Street
San Francisco, CA 94110
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Nedlloyd Line
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O'Donnel & Pia
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San Francisco, CA 94104

Page & Turnbull
724 Pine Street
San Francisco, CA 94104

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400 Second Street, Suite 400
San Francisco, CA 94107
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75 Broadway
San Francisco, CA 94111
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P.O. Box 7880
San Francisco, CA 94120
Attn: Marilyn L. Siems

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San Francisco, CA 94133
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222 Kearny Street, 7th Floor
San Francisco, CA 94108
Attn: Dennis Purcell

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3756 Grant Avenue, Suite 301
Oakland, CA 94610
Attn: Peter Bass

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Raymond, Boulton & Gee
843 Montgomery Street
San Francisco, CA 94133

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Reuben, Weintraub, and Cera
655 Montgomery Street, 16th Floor
San Francisco, CA 94111

David Rhoades & Associates
400 Montgomery Street, Suite 604
San Francisco, CA 94104

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Rockefeller & Assoc. Realty L.P
Four Embarcadero, Suite 2600
San Francisco, CA 94111-5994

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41 Sutter Street, #709
San Francisco, CA 94104
Attn: Donna Casey, Exec. Director

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One Maritime Plaza, 18th Floor
San Francisco, CA 94111
Attn: Dave Kremer

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333 Bush Street
San Francisco, CA 94104
Attn: John Kriken

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San Francisco, CA 94105
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725 Filbert Street
San Francisco, CA 94133

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Montgomery Capital Corp.
244 California St.
San Francisco, CA 94111

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4419 Moraga Ave.
Oakland, CA 94611

Stephen Weicker
899 Pine Street, #1610
San Francisco, CA 94108

Calvin Welch
Council of Community Housing
Organizations
409 Clayton Street
San Francisco, CA 94117

Bethea Wilson & Associates
Art in Architecture
2028 Scott, Suite 204
San Francisco, CA 94115

APPENDICES

A. Notice of EIR Requirement

B. Master Plan Schedule

C. Biology Data

  C-1 Wildlife Species Known or Suspected in Golden Gate Park
  C-2 Native Plant Species Recommended for Use in Golden Gate Park

D. Hazardous Materials Regulatory Framework

E. Truck Activity During Construction

F. EIR Authors and Consultants

PLANNING DEPARTMENT

City and County of San Francisco 1660 Mission Street San Francisco, CA 94103-2414

(415) 558-6378
PLANNING COMMISSION FAX: 558-6409
ADMINISTRATION FAX: 558-6426
CURRENT PLANNING/ZONING FAX: 558-6409
LONG RANGE PLANNING FAX: 558-6426

September 1, 1995

To Interested Persons:

RE: Golden Gate Park Draft Master Plan EIR

The San Francisco Planning Department's Office of Environmental Review is preparing an Environmental Impact Report (EIR) regarding the Golden Gate Park March 1995 Draft Master Plan. A notice that and EIR is required is enclosed.

Public comments concerning the potential environmental effects of this project are welcomed. In order for your concerns to be fully considered throughout the environmental review process, we would appreciate receiving any comments you may have about issues to be addressed in the environmental review **by October 6, 1995**. Written comments may be sent to Hillary Gitelman at the above address.

Environmental review provides information on physical environmental effects and does not provide recommendations on the project itself. Following environmental review, the Recreation and Park Commission will consider approval of the Draft Master Plan and of the recommended actions it contains. Hearings will be held in order to allow public comment on the appropriateness of the proposed Draft Master Plan and its recommendations. For more information regarding the Draft Master Plan or the approval process, contact Park Planner Deborah Learner at 666-7087.

For more information on the environmental review process or the enclosed notice, contact Hillary Gitelman at 558-6384.

Sincerely,

Barbara W. Sahm

Barbara W. Sahm
Environmental Review Officer

NOTICE THAT AN ENVIRONMENTAL IMPACT REPORT IS DETERMINED TO BE REQUIRED

Date of this Notice: September 1, 1995

Lead Agency: City and County of San Francisco, Planning Department
1660 Mission Street, Fifth Floor, San Francisco, CA 94103

Agency Contact Person: Hillary Gitelman **Telephone:** (415) 558-6384

Project Title: 95.243E: Golden Gate Park Draft Master Plan
Project Sponsor: San Francisco Recreation and Park Department
Project Contact Person: Deborah Learner

Project Address: Assessor's Block(s) and Lot(s): 1700/1
City and County: San Francisco

Project Description: The proposed Golden Gate Park Draft Master Plan, if adopted, would revise and expand 1979-85 objectives and policies for Golden Gate Park, provide a policy framework and unified context for previously approved repair, maintenance, and upgrades of Park facilities, and would allow implementation of a series of action-oriented recommendations resulting in physical and non-physical changes to the Park. Physical changes would relate to all systems of the Park's infrastructure, including water, sewer, electrical, circulation/ transportation, and maintenance areas, as well as the Park's landscape, recreational and visitor facilities, buildings and monuments. Non-physical changes would concern park management, funding mechanisms, special studies, data collection, and educational programs

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THIS PROJECT MAY HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT AND AN ENVIRONMENTAL IMPACT REPORT IS REQUIRED. This determination is based upon the criteria of the Guidelines of the State Secretary for Resources, Section 15063 (Initial Study), 15064 (Determining Significant Effect), and 15065 (Mandatory Findings of Significance).

Deadline for Filing of an Appeal of this Determination to the City Planning Commission: September 11, 1995. An appeal requires: (1) a letter specifying the grounds for the appeal, and; (2) a $209.00 filing fee.

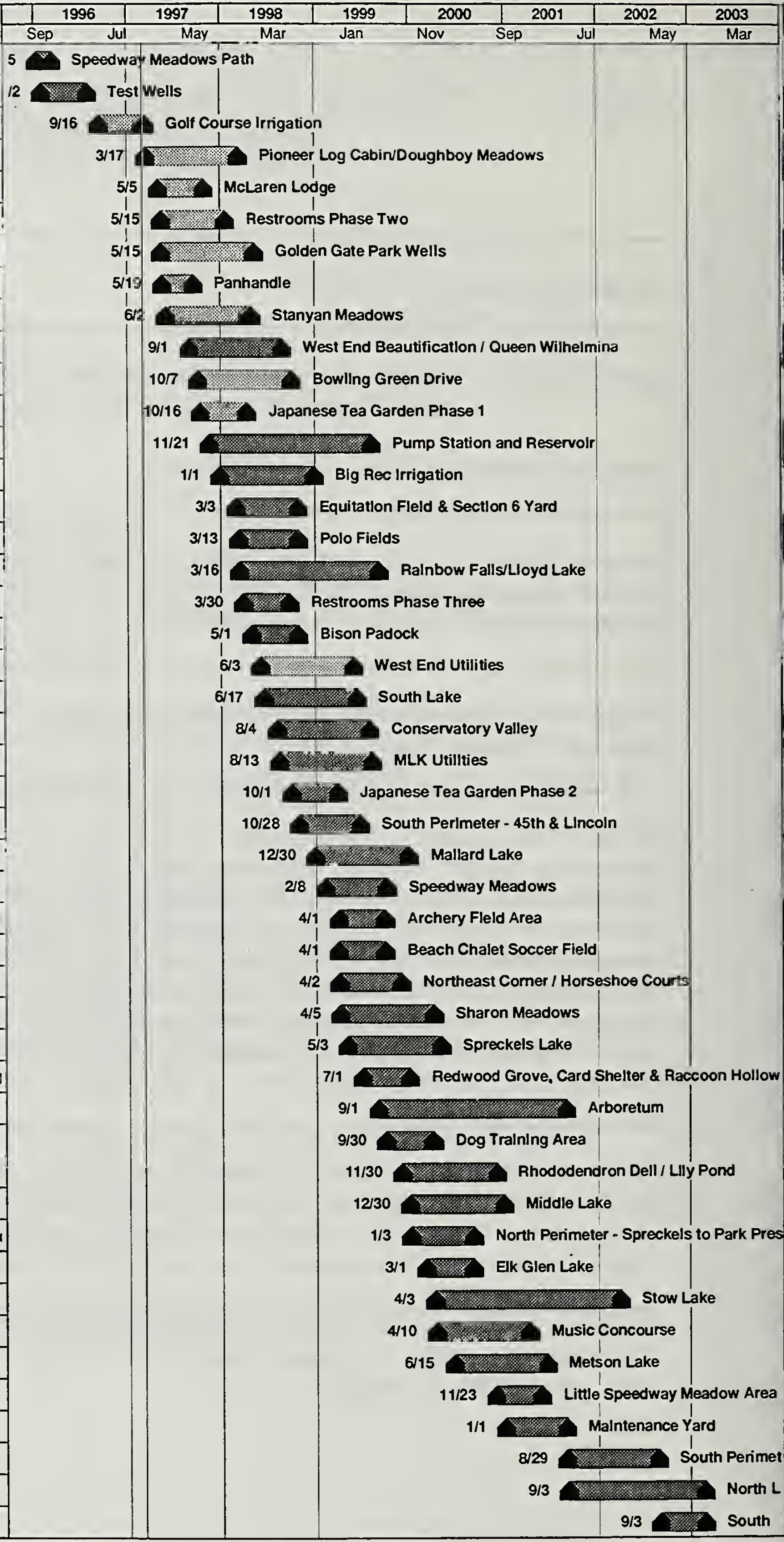
Barbara W. Sahm

Barbara W. Sahm
Environmental Review Officer

1992 Golden Gate Park Bond
Golden Gate Park Preliminary Construction Schedule

Appendix B

ID	Contract	Project Description
1		Speedway Meadows Path
2	50	Test Wells
3	9	Golf Course Irrigation
1	31	Pioneer Log Cabin/Doughboy Meadows
6	49	McLaren Lodge
6		Restrooms Phase Two
2		Golden Gate Park Wells
6	50	Panhandle
6	49	Stanyan Meadows
10	1 & 2	West End Beautification / Queen Wilhel
11	37. 44, 45	Bowling Green Drive
12	34	Japanese Tea Garden Phase 1
10	29	Pump Station and Reservoir
11	34	Big Rec Irrigation
15	9	Equitation Field & Section 6 Yard
15	21	Polo Fields
17	26, 30	Rainbow Falls/Lloyd Lake
18		Restrooms Phase Three
19	14	Bison Padock
20	19, 11, 6	West End Utilities
21	16	South Lake
22	46	Conservatory Valley
21	28, 17, 41	MLK Utilities
21	34	Japanese Tea Garden Phase 2
25	7	South Perimeter - 45th & Lincoln
26	24	Mallard Lake
21	24	Speedway Meadows
28	16	Archery Field Area
29	3	Beach Chalet Soccer Field
30	47	Northeast Corner / Horseshoe Courts
31	45	Sharon Meadows
32	24	Spreckels Lake
28	34	Redwood Grove, Card Shelter & Raccoon
34	34	Arboretum
35	14	Dog Training Area
36	38	Rhododendron Dell / Lily Pond
37	15	Middle Lake
38	25	North Perimeter - Spreckels to Park Presi
39	27	Elk Glen Lake
40	32	Stow Lake
41	35	Music Concourse
42	22	Metson Lake
43	18	Little Speedway Meadow Area
44	43	Maintenance Yard
45	42	South Perimeter - Arguello to 9th
46	12	North Lake
47	5	South Windmill Area



Project: GGP Master Schedule Date: 3/3/97	Task ▨	Progress ▬	Milestone ★	Delay ◆—◆

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APPENDIX C-1 WILDLIFE SPECIES KNOWN OR SUSPECTED TO OCCUR IN GOLDEN GATE PARK

Amphibians

Common Name	**Scientific Name**
Arboreal salamander	Aneides lugubris
Bullfrog	Rana catesbeiana
California newt	Taricha torosa
*California red-legged frog	Rana aurora draytoni
California slender salamander	Batrachoseps attenuatus
Pacific tree frog	Hyla regilla
Western toad	Bufo boreas

Reptiles

Common Name	**Scientific Name**
Diamond-backed terrapin turtle	Malaclemys sp.
Garter snake	Thamnophis sirtalis
Gopher snake	Pituophis melanoleucus
Map turtle	Graptemys sp.
Slider	Pseudemys scripta
Smooth softshell turtle	Trionyx muticus
Southern alligator lizard	Gerrhonotus multicaninata
*Southwestern pond turtle	Clemmys marmorata pallida
Western aquatic garter snake	Thamnophis couchii
Western fence lizard	Sceloporus occidentalis
Western terrestrial garter snake	Thamnophis elegans

Raptors

Common Name	**Scientific Name**
+American kestrel	Falco sparverius
+Barn owl	Tyto alba
+Cooper's hawk	Accipiter cooperii
+Great-horned owl	Bubo virginianus
+Merlin	Falco columbarius
+Northern harrier	Circus cyaneus
+Osprey	Pandion haliaetus
*Peregrine falcon	Falco peregrinus
+Red-shouldered hawk	Buteo lineatus
+Red-tailed hawk	Buteo jamaicensis
+Sharp-shinned hawk	Accipiter striatus
Turkey vulture	Cathartes aura
+Western screech-owl	Otus kennicotti

Other Birds

Common Name	**Scientific Name**
Acorn woodpecker	Melanerpes formicivorus
Allen's hummingbird	Selasphorus sasin
American redstart	Setophaga ruticilla
American robin	Turdus migratorius
American coot	Fulica americana
American crow	Corvus brachyrhynchos
American wigeon	Anas americana
Anna's hummingbird	Calypte anna
Barn swallow	Hirundo rustica

Bay-breasted warbler	Dendroica castanea
Belted kingfisher	Ceryle alcyon
Bewick's wren	Thryomanes bewickii
Black-and-white warbler	Mniotilta varia
+Black-crowned night heron	Nycticorax nycticorax
Black-headed grosbeak	Pheucticus melanocephalus
Black-throated gray warbler	Dendroica nigrescens
Black phoebe	Sayornis nigricans
Blackpoll warbler	Dendroica striata
Bonaparte's gull	Larus philadelphia
Brewer's blackbird	Euphagus cyanocephalus
Brown creeper	Certhia americana
Brown towhee	Pipilo fuscus
Brown-headed cowbird	Molothrus ater
Bufflehead	Bucephala albeola
Bushtit	Psaltriparus minimus
+California gull	Larus californicus
California quail	Callipepla californica
Canvasback	Aythya valisineria
Caspian tern	Sterna caspia
Cedar waxwing	Bombycilla cedrorum
Chestnut-backed chickadee	Parus rufescens
Cliff swallow	Hirundo pyrrhonota
Common goldeneye	Bucephala elangula
Common raven	Corvus corax
+Common saltmarsh yellowthroat (nesting)	Geothlypis trichas sinuosa
Common snipe	Gallinago gallinago
Common yellowthroat	Geothlypis trichas
Cinnamon teal	Anas cyanoptera
Dark-eyed junco	Junco hyemalis
+Double-crested cormorant	Phalacrocorax auritus
Downy woodpecker	Picoides pubescens
Eared grebe	Podiceps nigricollis
Eurasian wigeon	Anas penelope
European starling	Sturnus vulgaris
Fox sparrow	Passerella iliaca
Gadwall	Anas strepera
Golden-crowned kinglet	Regulus satrapa
Golden-crowned sparrow	Zonotrichia atricapilla
+Great blue heron	Ardea herodias
+Great egret	Casmerodius albus
Green heron?	Butorides virescens
Green-winged teal	Anas crecca
House finch	Carpodacus mexicanus
House sparrow	Passer domesticus
House wren	Troglodytes aedon
Heermann's gull	Larus heermanni
Hermit warbler	Dendroica occidentalis
Hermit thrush	Catharus guttatus
Herring gull	Larus argentatus
Huttons' vireo	Vireo huttoni
Killdeer	Charadrius vociferus
Lesser goldfinch	Carduelis psaltria
Lesser scaup	Aythya sp.
Lincoln's sparrow	Melospiza lincolnii

MacGillivray's warbler	Oporornis tolmiei
Mallard	Anas platyrhynchos
Marsh wren	Cistothorus palustris
Mew gull	Larus canus
Mourning dove	Zenaida macroura
Nashville warbler	Vermivora ruficapilla
Northern flicker	Colaptes auratus
Northern rough-winged swallow	Stelgidopteryx serripennis
Northern oriole	Icterus galbula
Northern pintail	Anas acuta
Northern shoveler	Anas clypeata
Northern waterthrush	Seiurus noveboracensis
Olive-sided flycatcher	Contopus borealis
Orange-crowned warbler	Vermivora celata
Pacific-slope flycatcher	Empidonax difficilis
Palm warbler	Dendroica palmarum
Pied-billed grebe	Podilymbus podiceps
Pine siskin	Carduelis pinus
Purple finch	Carpodacus purpureus
Pygmy nuthatch	Sitta pygmaea
Red crossbill	Loxia curvirostra
Red-breasted nuthatch	Sitta canadensis
Red-breasted sapsucker	Sphyrapicus ruber
Red-winged blackbird	Agelaius phoeniceus
Ring-billed gull	Larus delawarensis
Ring-necked duck	Aythya collaris
Rock dove	Columba livia
Rose-breasted grosbeak	Pheucticus ludovicianus
Ruby-crowned kinglet	Regulus calendula
Ruddy duck	Oxyura jamaicensis
Rufous hummingbird	Selasphorus rufous
Rufous-sided towhee	Pipilo crissalis
Scrub jay	Aphelocoma coerulescens
+Snowy egret	Egretta thula
Solitary vireo	Vireo solitarius
Song sparrow	Melospiza melodia
Sora rail	Porzana carolina
Stellar's jay	Cyanocitta stelleri
+Summer tanager	Piranga sp.
Swainson's thrush	Catharus ustulatus
Tennesee warbler	Vermivora peregrina
Thayer's gull	Larus thayeri
Townsend's warbler	Dendroica townsendi
*Tricolored blackbird	Agelaius tricolor
Tree swallow	Tachycineta bicolor
Varied thrush	Ixoreus naevius
+Vaux's swift	Chaetura vauxi
Violet-green swallow	Tachycineta thalassina
Virginia rail	Rallus limicola
Warbling vireo	Vireo gilvus
Western gull	Larus occidentalis
Western tanager	Piranga ludoviciana
Western wood-pewee	Contopus sordidulus
White-crowned sparrow	Zonotrichia leucophrys
White-throated sparrow	Zonotrichia albicollis
White-throated swift	Aeronautes saxatalis

*Willow flycatcher (nesting)	Empidonax traillii
Wilson's warbler	Wilsonia pusilla
Winter wren	Troglodytes troglodytes
Wood duck	Aix sponsa
+Yellow-rumped warbler	Dendroica coronata
+Yellow warbler (nesting)	Dendroica petechia

Mammals

Common Name	**Scientific Name**
Black rat	Rattus rattus
Botta's pocket gopher	Thomomys bottae
Broad-footed mole	Scapanus latimanus
Brush rabbit	Sylvilagus bachmani
California ground squirrel	Spermophilus beecheyi
California myotis bat	Myotis californicus
California vole	Microtus californicus
Deer mouse	Peromyscus maniculatus
Fox squirrel	Sciurus niger
Fringed myotis bat	Myotis thysanodes
Gray fox	Urocyon cinereoargenteus
Hoary bat	Lasiurus cinereus
House mouse	Mus musculus
Little brown myotis bat	Myotis lucifugus
Long-legged myotis bat	Myotis volans
Long-tailed weasel	Mustela frenata
Norway rat	Rattus norvegicus
Opossum	Didelphis virginiana
Racoon	Procyon lotor
Red bat	Lasiurus borealis
Shrew-mole	Neurotrichus gibbsii
Striped skunk	Mephitis mephitis
Trowbridge's shrew	Sorex trowbridgii
Western gray squirrel	Sciurus griseus
Western harvest mouse	Reithrodontomys megalotis

* indicates state or federal listed species and candidates for federal listing.

+ indicates state species of special concern that are not state or federally listed or proposed for listing.

Source: May Consulting Services, Native Plant Society

APPENDIX C-2 NATIVE PLANT SPECIES RECOMMENDED BY THE LOCAL CHAPTER OF NATIVE PLANT SOCIETY FOR USE IN GOLDEN GATE PARK SENSITIVE WILDLIFE AND HABITAT AREAS AND INDIGENOUS OAK PRESERVES.

Species Recommended for Indigenous Oak Preserves

Common Name	Scientific Name	Comments
Tree Species		
California bay-laurel	Umbelluria californica	1
Coast live oak	Quercus agrifolia	1,2
Dwarf horse-chestnut	Aesculus californica	1
Madrone	Arbutus menziesii	Sp, 2
Toyon	Heteromeles arbutifolia	Sp,S, 2
Wax myrtle	Myrica californica	1
Shrub Species		
Blue elderberry	Sambucus mexicana	Sp, S, 2
Canyon live oak	Quercus chrysolepis	
Coffeeberry	Rhamnus californica	Sp, 2
Current	Ribes menziesii	Sp, 2
Monkey flower	Mimulus aurantiacus	F
Vine Species		
California grape	Vitis californica	Sp,2
Wild pea	Lathyrus vestita var. bolanderi	Sp
Herbaceous Forb Species		
yarrow	Achillea millefolium	Sp,F
Baby blue eyes	Nemophila menziesii	Sp
Wood strawberry	Fragaria vesca	Sp, S, 2
Potentilla	Potentilla glandulosa	Sp
California buttercup	Ranunculus californica	Sp
Bee plant	Scrophularia californica	Sp
Wood mint	Stachys ajugoides	Sp
Douglas' iris	Iris douglasiana	Sp
Mule's ears	Wyethia angustifolia	Sp
Chickweed	Stellaria media	Sp
Miner's lettuce	Claytonia perfoliata	Sp,S
Grass Species		
Brome grass	Bromus carinatus	
Blue wildrye	Elymus glaucus	
California fescue	Festuca californica	
California oat grass	Danthonia californica	
Melic grass	Melica geyeri, M. imperfecta	
Nodding needlegrass	Nasella cernua	
Red fescue	Festuca rubra	

Species Recommended for Sensitive Wildlife and Habitat Areas- Emergent Aquatic Species and Upland Pond Edges

Trees and Shrubs		
Arroyo willow	Salix lasiolepis	1
California blackberry	Rubus ursinus	1, 2
California wild grape	Vitis californica	2
California wild rose	Rosa californica	2
Emergent Aquatic species		
Baltic rush	Juncus balticus	1
Carex	Carex feta	
Carex	Carex praegracilis	
Common sedge	Cyperus eragrostis	1
Common spike rush	Eleocharis macrostachya	1
Dense-headed carex	Carex densa	
Duckweed	Lemna minor	
Giant chain fern	Woodwardia fimbriata	
Howell's isoetes	Isoetes howellii	
Iris-leaved rush	Juncus xiphioides	
Pacific rush	Juncus effusus var. pacificus	
Small spike rush	Eleocharis acicularis	
Water smartweed	Polygonum amphibium	
Watercress	Rorripa nasturtium-aquaticum	

Comments:
1= Known from Golden Gate Park
2= Fruit-bearing
SP= Spring-flowering
S= Summer flowering
F=Fall flowering

Source: May Consulting Services

APPENDIX D: HAZARDOUS MATERIALS REGULATORY FRAMEWORK

Hazardous materials and hazardous wastes are regulated by various federal, state, regional, and local regulations, with the objective of protecting public health and the environment. The regulations are presented below.

Federal Regulations

The U.S. Environmental Protection Agency (U.S. EPA) is the lead agency responsible for enforcing federal regulations that affect public health or the environment. The primary federal laws and regulations include: the Resource Conservation and Recovery Act of 1976 (RCRA); the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA); and the Superfund Act and Reauthorization Act of 1986 (SARA). Federal statutes pertaining to hazardous materials and wastes are contained in the Code of Federal Regulations (40 CFR).

These laws require that responsible parties report any known hazardous waste contamination of soil or groundwater as defined in 40 CFR to the U.S. EPA. State and local agencies must also be informed. Any contamination that threatens the public health or environment must be remediated by the responsible party according to standards set by the U.S. EPA. RCRA also contains regulations for the safe storage, transportation and disposal of hazardous wastes.

The federally published lists of sites which trace the status of suspected hazardous materials sites or identify sites permitted to generate hazardous wastes include:

- the National Priority List (NPL), which prioritizes sites with significant risk to human health and the environment;
- the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), which tracks properties identified under CERCLA and SARA;
- the toxic chemical release inventory which identifies sites which have reported chemical release to the air, water, or land as required by Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) which are suspected to have some contamination;
- the Federal Superfund Liens list (LIENS) which identifies properties where the U.S. EPA has placed a lien because the U.S. EPA has spent money for remedial action or notified property owners of the potential of liability for remedial action. This list is compiled by the Office of Enforcement and Compliance Monitoring of the U.S. EPA; and
- the Emergency Response Notification System (ERNS) which lists releases of oil and hazardous substances reported pursuant to section 103 of CERCLA; section 311 of the Clean Water Act; and sections 300.51 and 300.65 of the National Oil and Hazardous Substances Contingency Plan.
- the list of facilities permitted to generate hazardous wastes under RCRA.

State and Regional Regulations

The U.S. EPA has delegated much of its regulatory authority to the individual states. The Department of Toxic Substance Control (DTSC) of the California Environmental Protection Agency (Cal EPA), formerly a division of the Department of Health Services, enforces hazardous materials and waste regulations in California, in conjunction with the U.S. EPA. The DTSC is responsible for regulating the management of hazardous substances including the remediation of sites contaminated by hazardous substances. California hazardous materials laws incorporated federal standards, but are often more strict than federal laws. The primary state laws include: the California Hazardous Waste Control Law (HWCL), the state equivalent of RCRA; and the California Hazardous Substance Account Act, the state equivalent of CERCLA. State hazardous materials and waste laws are contained in the California Code of Regulations, Titles 22 and 26.

The published lists of sites which trace identification and remediation progress within the state include:

- CALSITES, which was previously referred to as the Abandoned Sites Program Information System (ASPIS), and identifies potential hazardous waste sites, which are then screened by the DTSC;
- the Annual Work Plan, formerly known as the Bond Expenditure Plan (BEP), which is a site-specific expenditure plan for the appropriation of California Hazardous Substance Cleanup Bond Act of 1984 funds (this list is no longer updated);
- the CORTESE List, which is a compilation of information from various sources listing potential and confirmed hazardous waste of hazardous substance sites, previously maintained by the State Office of Planning and Research. (This list is no longer updated.)

The Regional Water Quality Control Board (RWQCB) is authorized by the State Water Resources Control Board to enforce provisions of the Porter - Cologne Water Quality Control Act of 1969. This act gives the RWQCB authority to require groundwater investigations when the quality of groundwater or surface waters of the state are threatened and to require remediation of the site, if necessary. Both of the RWQCB and the DTSC are part of the Cal EPA.

The RWQCB maintains several lists identifying hazardous waste sites:

- the Leaking Underground Storage Tanks (LUST) list, which is required by the Health and Safety Code and tracks remediation status of known leaking underground tanks;
- the Waste Management Unit Discharge System (WMUDS) list of sites which tracks waste management units. The list contains sites identified on the Toxic Pits List, which is required by the Toxic Pits Cleanup Act (Katz Bill), and places relatively strict limitations on the discharge of hazardous wastes into surface impoundments, toxic ponds, pits and lagoons (the RWQCB is required to inspect all surface impoundments annually). The

WMUDS list also identifies sites targeted by the Solid Waste Assessment Program where there is a possible risk of solid waste disposal sites (landfills) discharging hazardous wastes, threatening either water or air quality.

- the Non-Tank or Unauthorized Toxic Releases List, which traces the status of other hazardous releases to the environment;
- the Toxic Pits List, which is required by the Toxic Pits Cleanup Act (Katz Bill), and places relatively strict limitations on the discharge of hazardous wastes into surface impoundments, toxic ponds, pits and lagoons (the RWQCB is required to inspect all surface impoundments annually); and
- the Solid Waste Assessment Program targets sites and maintains a list of where there is a possible risk of solid waste disposal sites (landfills) discharging hazardous wastes, threatening either water or air quality.

The Bay Area Air Quality Management District (BAAQMD) may impose specific requirements on remediation activities to protect ambient air quality from dust or other airborne contaminants.

The California Waste Management Board maintains a list of active, inactive or closed solid waste disposal sites and transfer facilities, as legislated under the Solid Waste Management and Resource Recovery Act of 1972. The list is referred to as the Solid Waste Information System (SWIS).

The California Environmental Affairs Agency Office of Hazardous Material Data Management produces a database containing information on sites which have been issued waste discharge requirements (NPDES permits). These sites are allowed to discharge specified levels of chemicals under their waste discharge requirements. This list is referred to as the Waste Discharge Systems (WDS).

The State Water Resources Control Board (SWRCB) also requires permitting of all underground storage tanks (USTs) containing hazardous substances. The California laws regulating USTs are primarily found in the Health and Safety Code; combined with regulations adopted by the State Water Board, these laws comprise the requirements of the state UST program. The laws contain requirements for UST permitting, construction, installation, leak detection monitoring, repairs and corrective actions and closures. In accordance with state laws, counties are required to implement a UST program and in some cases, the county requirements are more stringent than those of the State. Cities are also given the option to implement a UST program. The Regional Water Quality Control Board may also oversee corrective actions.

Local Regulations

Several agencies within the City are involved in the use and storage of hazardous materials and the disposal of hazardous wastes, The San Francisco Department of Public Health, Bureau of

Environmental Health and Management (DPH), is the primary local environmental regulatory agency responsible for enforcement of City, state and federal environmental health codes and regulations. DPH maintains records of underground storage tank modifications and releases of hazardous chemicals from storage tanks, and records where toxic chemicals are used, manufactured and/or stored by San Francisco businesses.

DPH has the authority over monitoring the storage of flammable liquids, which includes underground tanks, and other hazardous materials, The DPH also has a memorandum of understanding with the RWQCB that gives the City local oversight authority over most hazardous waste remediation activities.

The DPH maintains the Local Oversight Facilities list which includes underground storage tank sites under the jurisdiction of the Local Oversight Program of the DPH. No additional sites were identified on this list that were not identified on the LUST list.

The San Francisco Fire Department (SFFD), Bureau of Fire Prevention and Investigation, conducts inspections of underground storage tank installations and has permit authority over the storage of flammable liquids. The SFFD also maintains documentation of known above-ground storage tanks.

The Department of Public Works administers the San Francisco Public Works Code, Article 20, "Analyzing the Soil for Hazardous Waste," known as the Maher Ordinance. This ordinance, enacted in 1986, requires an investigation of hazardous wastes in soil as a prerequisite for building permits when "the permit for a construction project ... involves the disturbance of at least 50 cubic yards of soil..."bayward of the high tide line. In addition, Section 1013 of the Maher Ordinance, construction on City Property, applies the same requirements to improvements on land under the City's jurisdiction, when no building permit is required.

HAZARDOUS MATERIALS WORKER SAFETY REQUIREMENTS

The Federal Occupational Safety and Health Administration (Fed/OSHA) and the California Safety and Health Administration (Cal/OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. The federal regulations pertaining to worker safety are contained in the Code of Federal Regulations, Title 29 (29 CFR) as authorized in the Occupational Safety and Health Act of 1970. They provide standards for safe workplaces and work practices, including standards relating to hazardous materials handling. In California, Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations; Cal/OSHA standards are generally more stringent than federal regulations.

The state regulations concerning the use of hazardous materials in the workplace are included in Title 8 of the California Code of Regulations, which contain requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA also enforces hazard communication program regulations, which contain worker safety training and hazard information requirements, such as procedures for identifying and labeling hazardous substances, communicating hazard information relating to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites.

ASBESTOS ABATEMENT REGULATIONS

Where demolition or renovation work will involve 100 square feet or more of asbestos-containing materials, the State law requires that the contractor be certified and that certain procedures be followed.[5] Section 19827.5 of the California Health and Safety Code, adopted January 1, 1991, requires that local agencies not issue demolition permits until an applicant has demonstrated compliance notification requirements under applicable Federal regulations regarding hazardous air pollutants, including asbestos.

The BAAQMD is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement. The BAAQMD is to be notified ten days in advance of any proposed demolition. Notification includes the names, addresses and phone numbers of operations and persons responsible, including the contractor; description and location of the structure to be renovated/demolished including size, age and prior use, and the approximate amount of friable asbestos; scheduled starting and completion dates of demolition, nature of planned work, and methods to be employed; procedures to be employed to meet BAAQMD requirements; and the name and location of the waste disposal site to be used.

According to the BAAQMD Regulation 11, Rule 2, if a structure is to be demolished, friable and potentially friable asbestos must be removed and disposed of properly. Workers and the public could become exposed to asbestos fibers as they become airborne during removal.[6]

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[5] Assembly Bill 2040, Asbestos 1985, Added Section 24223 and Chapter 25 to Division 20 of the Health and Safety Code.

[6] Bay Area Air Quality Management District, Rules and Regulations, Regulation 11, Rule 2, *Asbestos Demolition, Renovation and Manufacturing*, adopted May 1981.

The local office of Cal/OSHA must be notified of asbestos abatement to be carried out. Asbestos contractors must follow the State regulations contained in Title 8 of the California Code of Regulations, Sections 1529 and 341.6 through 341.14 where there is asbestos-related work involving 100 square feet or more of asbestos-containing materials. Asbestos removal contractors must be certified as such by the Contractors Licensing Board of the State of California. Pursuant to California law, the Department of Building Inspection (DBI) would not issue the required permit until the applicant has complied with the notice requirements above as well as requirements for proper waste disposal (described below).

Office Bulletin No. 88-4 of the San Francisco Fire Department contains local requirements for asbestos abatement to protect against fire hazards. This bulletin requires the use of fire resistive or non-combustible materials for any temporary asbestos abatement structures constructed; limits abatement to a maximum of two floors within a building; requires that exits are maintained in accordance with the applicable requirements of the San Francisco Fire Code; requires maintenance of opening protection for rated shafts in accordance with Title 24 of the California Code of Regulations; requires posting of a notice of asbestos abatement adjacent to the main fire alarm panel; restricts impairment of life safety systems to those floors where asbestos abatement is in process; and requires fire extinguishers in the appropriate locations.

LEAD-BASED PAINT ABATEMENT REGULATIONS

In accordance with regulatory guidance, lead-based paint waste that has been separated from building materials (such as delaminated or chipping paint) must be evaluated separately from other building materials for waste disposal purposes during building demolition. Accordingly, any chipping or delaminated paint would need to be removed before any renovation or demolition activities. Depending on the level of lead identified in the paint, it may require disposal as a hazardous waste. Building materials which still have the paint adhered to them may generally be disposed of as regular construction debris, regardless of the lead level in the paint.

The Lead in Construction Standard contained in Title 29 of the Code of Federal Regulations, Section 1926.62 applies to the removal of chipping or delaminated lead-based paint. In accordance with this standard, it will be necessary for workers to wear respiratory protection until the work is completed or until an employee exposure assessment can demonstrate that air lead levels during scraping are below the permissible exposure limit (PEL). Other applicable requirements of the standard include worker awareness training, use of protective clothing, provisions for change areas and hand washing facilities, biological monitoring, and development of a site specific compliance program. California regulations relating to the abatement of lead-based paint are identical to the Federal regulations.

WASTE DISPOSAL REGULATIONS

All California landfills have been segregated by regulatory authority into the categories of Class I, Class II and Class III facilities. Class I facilities can accept hazardous wastes with chemical levels below the federal land disposal restriction (land ban) treatment standards. Class II and III facilities can accept non-hazardous wastes that meet acceptance criteria determined by the State for organic and inorganic compounds; each landfill has an individual acceptance criteria.

The disposal of soil is regulated by the RWQCB and will be predicated on the concentrations of the chemical constituents that are present. Soil with total petroleum hydrocarbon or organic compound concentrations above the detection limit must be disposed of at an appropriately landfill facility or treated to reduce the levels of chemicals in the soil; the concentration of the compounds present will determine the appropriate type of disposal facility. In general, soil with total petroleum hydrocarbon levels up to 100 milligrams per kilogram can be disposed of at a Class III disposal facility. If the concentration is between 100 and 1,000 milligrams per kilogram and be disposed of at a Class II disposal facility and if the concentration is greater than 1,000 milligrams per kilogram, Class I disposal would be required.

The disposal alternative is also predicated on the total and soluble concentrations of metals. Soil with total metal concentrations that are above the Total Threshold Limit Concentration (TTLC) and soluble metal concentrations that are above the Soluble Threshold Limit Concentration (STLC) must be disposed of at a Class I disposal facility or treated.[7] The Class II and III landfills in the Bay Area have acceptance criteria for lead that are lower than the STLC.

Soil with no concentrations of organic chemicals above detection limit and total and soluble metal concentrations that are below the TTLC and STLC may be used on-site or transported off-site as unrestricted waste.

Lead-based paint removed form the site would be considered a hazardous waste because the total lead concentration would be greater than the TTLC of 1,000 milligrams per kilogram. It would be necessary to dispose of the paint at a Class I facility.

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[7] The total threshold limit concentration (TTLC) and the soluble threshold limit concentration (STLC) are criteria used for waste classification purposes. If the waste contains a total concentration of a constituent and a concentration greater than the TTLC, it is considered a hazardous waste. If the total concentration is greater than ten times the STLC, then it would be necessary to perform a waste extraction test to determine the soluble concentration. If the soluble concentration is greater than the STLC, the waste would be considered hazardous. The waste extraction test involves a ten times dilution of the sample; because of this, it would be impossible for the soluble concentration to exceed the STLC unless the total concentration exceeded ten times the STLC.

The California Department of Toxic Substances Control has classified friable, finely divided and powdered wastes containing greater than one percent asbestos as a hazardous waste.[8] A friable waste is one which can be reduced to powder or dust under hand pressure when dry. Non-friable asbestos-containing wastes are not considered hazardous and are not subject to regulation under Title 22, Division 4.5 of the California Code of Regulations. The management of these wastes would still be subject to any requirements or restrictions which may be imposed by other regulatory agencies. The State standard for classification of asbestos wastes is contained in Section 66261.24 of Title 22 of the California Code of Regulations. Asbestos is not currently regulated as a hazardous waste under the RCRA; because of this it is considered a non-RCRA waste. Asbestos wastes totaling more than 50 pounds must be transported by a registered waste hauler to an approved treatment, storage or disposal facility.

Wastes containing asbestos may be disposed of at any landfill which has waste discharge requirements issued by the RWQCB which allow disposal of asbestos-containing materials, provided that the wastes are handled and disposed of in accordance with the Toxic Substances Control Act, the Clean Air Act's National emission Standards for Hazardous Air Pollutants, and Title 22 of the Code of California Regulations (Division 4.5). The Department of Toxic Substances Control also has treatment standards for asbestos-containing wastes which require submittal of a notification and certification form to the land disposal facility as well as wetting and containment of the asbestos-containing materials.

The owner of properties where hazardous waste are produced or abatement would occur must have a Hazardous Waste Generator Number assigned by and Registered with, the California Department of Toxic Substances Control in Sacramento. The contractor and hauler of the material are required to file a Hazardous Waste Manifest which details the hauling of the material from the site and the disposal of the material.

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[8] California Department of Toxic Substances Control, *Fact Sheet, Asbestos Handling, Transport and Disposal*, October 1993.

Estimates of Truck Activity Associated with Construction

Priority	Area #	Location	Weeks Duration	From	To	Truck Activity	Disruption	IW/WW	VCP	DW	Comments
1	9	Golf Course	34.5	Oct-95	Jun-96	Low	Low				Few construction trucks, no dirsruption to park roadways
2	40	County Fair Building	26.0	Jan-95	Jul-95	Low	Low				Small projects, off roadways
3	51	Kezar	34.5	May-95	Dec-95	Low	Low			xxxxx	Small projects, off roadways
4	48	McLaren Lodge	15.0	Mar-95	Jun-95	Low	Low				Small projects, off roadways
5	31	Pioneer Log Cabin, Doughboy Meadow, Rose Garden	52.0	Dec-95	Dec-96	Moderate	Moderate	2900		xxxxx	2 water lines in Kennedy, and curbing at intersection, lane closures.
6	49	Alvord Lake/Stanyan Meadow	15.0	Jun-95	Sep-95	Low	Moderate	500			Small projects, curbing along Kennedy
7	37	JFK and Conservatory Dr. Rose Garden to Kezar, La	52.0	Mar-96	Mar-97	Moderate	High	9300	5575	xxxxx	Construction on JFK for sewers & irrigation lines, may close road or major traffic control effort.
8	35	Music Concourse/DeYoung/Academy	52.0	Mar-96	Mar-97	Moderate	Moderate	1600	1500	xxxxx	ADA work & restrooms sewer work
9	19	Senior Center, Stables, Angler's Lodge	52.0	May-96	May-97	Moderate	Mod. to Hi	3000	2640		Lane closure on Kennedy for curbing, water and sewer work Lane closure on 36th Ave.
10	11	Chain of Lake Drives, Kennedy Drive,	34.5	May-97	Dec-97	Moderate	Mod. to Hi	4500	295	600	Construction of water main on either side of Kennedy, & one side of COL
11	6	Kennedy & King to Chain of Lakes Drive	34.5	Dec-97	Aug-98	Moderate	Mod. to Hi	5000			Irrigation water on both roads will cause lane closures
12	14	Bison Paddock	26.0	May-97	Oct-97	Low	Low				Small project
13	8	Equitation Field& Section 6 Maintenance Area	34.5	Jan-98	Aug-98	Low	Low		295		Few construction trucks, no dirsruption to park roadways
14	7	South Perimeter Strip, King to Lincoln	34.5	Aug-98	Apr-99	Low	Low				Few construction trucks, no disruption to park roadways
15	44	DeLaveaga Dell	26.0	Jul-96	Jan-97	Low	Low				Small pathway project
16	34	Japanese Tea Garden Phase I and Phase II	52.0	Oct-96	Apr-98	Low	Low				ADA work on Tea Garden & Restrooms
17	17	Middle Dr. Between 25th and 41st S to Lincoln	52.0	Oct-96	Sep-97	High	High	5500	2820		Raodway work, Irrigation, curbing
18	21	Polo Fields	34.5	Oct-97	May-98	Low	Low	xxxxx	xxxxx	xxxxx	All work offstreet, not significant truck activity
19	26	Lloyd Lake	78.0	Dec-96	Jun-98	High	High				Dredging and lining lake, haul route and spoil area to be determined
20	30	Rainbow Falls	78.0	Dec-96	Jun-98	Moderate	Moderate				Reconstruction of Falls, pumps rockery
21	29	Compost Area	104.0	Jan-97	Dec-98	High	High	1600	255		Construction of 2.5 million gallon reservoir, and pump station
22	41	Middle Dr. Bowling Green Dr. to King	34.5	Mar-97	Oct-97	Moderate	Mod. to Hi	6800	xxxx	xxxxx	Irrigation lines, lane closure
23	28	25th Avenue and Hoover Meadow	34.5	Oct-97	Jun-98	Moderate	Moderate	2300			Irrigation lines on King and curbing one side along Kennedy lane closures.
24	45	Sharon Meadow, Children's Playground	52.0	Mar-97	Mar-98	Moderate	Moderate	1950	311		Some curbing on Kezar, drainage off street, Assumed Irrigation was on street
25	1	North Windmill	52.0	Mar-97	Mar-98	Low	Low				Few construction trucks, no disruption to park roadways
26	2	Beach Chalet Great Highway	52.0	Mar-97	Mar-98	Low	Low				Few construction trucks, no disruption to park roadways
27	48	Conservatory	78.0	May-97	Oct-98	Low	Low				ADA work,
28	18	South Lake	52.0	Jan-98	Jan-99	High	High				Dredging and lining lake, haul route and spoil area to be determined
29	39	Big Rec Ball Field	52.0	Mar-98	Mar-99	Low	Low				Small projects, off roadways
30	47	Northeast Corner, Including Horseshoe Courts	34.5	Apr-98	Nov-98	Low	Low				Small projects, off roadways
31	38	Rhododendron Dell, Lily Pond	52.0	Nov-98	Nov-99	Moderate	Moderate				Dredging and lining lake, haul route and spoil area to be determined
32	10	Archery Field	26.0	Apr-98	Sep-98	Low	Moderate	xxxxx			Irrigation water from 47th Avenue, & North Lake Road
33	13	Dog Training Area COL to Senior Center	26.0	Oct-98	Mar-99	Moderate	Low	xxxxx			Irrigation line off major roadways
34	3	Beach Chalet Soccer Fields	26.0	Apr-98	Sep-98	Low	Low				Small project
35	23	Mallard Lake	52.0	May-98	May-99	High	High				Dredging and lining lake, haul route and spoil area to be determined
36	24	Speedway/Lindley Meadows	34.5	Jun-98	Jan-99	Moderate	Mod. to Hi	4100	1615		Irrigation line and curbing one side along Kennedy lane closure
37	50	Panhandle	34.5	Jul-98	Feb-99	Moderate	Low	100+			Irrigation lines- one crossing of Oak- remainder off roadway.
38	33	Arboretum	104.0	Sep-98	Aug-00	Moderate	Low	xxxxx			Irrigation lines, reconstruct restrooms, & other work- all work off road.
39	15	Middle Lake	52.0	Jan-99	Jan-00	High	High				Dredging and lining lake, haul route and spoil area to be determined
40	18	Little Speedway Meadow	26.0	Nov-99	May-00	Low	Low				Small project
41	22	Metson Lake	52.0	Jan-99	Jan-00	Moderate	Moderate				Dredging and lining lake, haul route and spoil area to be determined
42	20	Spreckels Lake	52.0	May-99	May-00	High	High				Dredging and lining lake, haul route and spoil area to be determined
43	36	North Perimeter Strip-Redwood Grove, Card Shelter,	26.0	Jul-99	Dec-99	Low	Low				Small projects, off roadways
44	25	North Perimeter Strip, Spreckels to Park Presidio	34.5	Jan-00	Aug-00	Moderate	Moderate	700	485		Curb construction on Crossover, Irrigation line at Fulton
45	27	Elk Glen Lake	26.0	Mar-00	Aug-00	Moderate	Moderate				Dredging and lining lake, haul route and spoil area to be determined
46	32	Stow Lake	104.0	Apr-00	Apr-02	High	High				Dredging and lining lake, haul route and spoil area to be determined
47	12	North Lake	78.0	Sep-01	Feb-03	High	High				Dredging and lining lake, haul route and spoil area to be determined
48	42	South Perimeter Strip, Arguello to 9th Av.	52.0	Nov-00	Oct-01	Low	Low				Small projects, off roadways
49	43	Maintenance Yard	34.5	Jan-01	Aug-01	Low	Low				Electrical project, off roadways
50	5	Murphy Windmill to Kennedy	26.0	Sep-02	Mar-03	Low	Low				Few construction trucks, no dirsruption to park roadways
	4	Richmond/Sunset Sewage Treatment Plant				None	None				Project not described
		Legend									
	IW/WW	Irrigation Water/Well Water to be constructed									
	VCP	Drainage/Sanitary Sewer to be constructed									
	DW	Domestic Water to be ocnstructed									
	xxxxx	Desginates Improvement - length unknown									
		Lengths provided in feet where available.									

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